



Southwestern University  
Thirteenth Annual  
Student Works Symposium

from *every voice*

Fine Arts  
Humanities  
Natural Sciences  
Social Sciences

April 4, 2012

**SYMPOSIUM PROGRAM**



# **2012 STUDENT WORKS SYMPOSIUM FROM EVERY VOICE**

Southwestern University  
Georgetown, Texas

PROGRAM CHAIR  
Chrissy Vasquez, Religion Major  
Class of 2012  
Southwestern University

**Special Thanks To:**  
Office of the Provost  
Paideia Program

April 4, 2012

Members of the Southwestern and Georgetown Community,

It is our great pleasure to welcome you to the thirteenth annual Southwestern University Student Works Symposium – From Every Voice.

For the past years, the symposium has become one of Southwestern's greatest legacies. Its grand display of the various interests, expertise, and in and out-of-classroom experiences of Southwestern students encapsulates the spirit of a liberal arts education. The symposium is a celebration of students' ability to utilize classroom knowledge to gain understanding of the world and affect change in Southwestern, the community, and the world at large.

This year, the symposium will showcase 110 presentations featuring the works of 138 students from 20 disciplines. The diversity of the presentations will hopefully provide an opportunity for the Southwestern and Georgetown community to engage in conversations on thought-provoking topics.

We appreciate your attendance immensely and hope that you leave the symposium with a wealth of new knowledge.

Sincerely,

Chrissy Vasquez

Class of 2012

**Program Chair**

**Student Works Symposium – From Every Voice**

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# SYMPOSIUM SCHEDULE AT A GLANCE

11:00-4:00 Registration for Presenters in Bishops Lounge

12:00-12:20 Performance by Southwestern University Trombone Quartet on the Bishops Patio

5:00-6:00 Oral Presentations in the Red McCombs Campus Center Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, and the Merzbach Room

6:00 Introductory Remarks: Chrissy Vasquez, Program Chair  
Welcoming Remarks: Jake B. Schrum, President of Southwestern University in Bishops Lounge

6:10-6:30 Creative Works and Exhibitions in the Sarofim School of Fine Arts Jim and Pat Walzel Lobby, *Refreshments Served*

6:30-7:30 Poster Presentations, Creative Works and Exhibitions in the Bishops Lounge, *Refreshments Served*

7:30-7:45 Performance by String Quartet in the Bishops Lounge

7:45-9:00 Continuation of Oral Presentations in the Red McCombs Campus Center Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, and the Merzbach Room

# PROGRAM AGENDA

## CREATIVE WORKS AND EXHIBITIONS

### Bishops Lounge

- 12:00 62. Performance by Southwestern University Trombone Quartet on the Bishops Patio  
Michael Martinez, Ben Bracher, Allie Lingren, David Vaden

## ORAL PRESENTATIONS

### Lynda McCombs Ballroom

- 5:00 1. Swapping Frog Legs for Fries: Identity, Food, and Globalization in Toulouse, France  
Elizabeth Marzec
- 5:15 2. The Story of Adherence: Staying Alive with HIV/AIDS  
Meagan Moore
- 5:30 3. The Interaction of the Alternative, the Ancestral, and the Western Medicine: A  
Modern Representation of the Castas System  
Adriana Saad
- 5:45 4. Balinese Food, Identity, and Tourism  
Katherine Kemper

### Marsha Shields Ballroom

- 5:00 5. Inentidad, Lenguaje, y el Estudio en el Extranjero: Hablantes Nativos del Español y  
los Cambios de Identidad  
Milly Arcovedo
- 5:15 6. Luther in Film  
Rory Jones
- 5:30 7. Autobiography and Truth-Telling: From Derrida to Alison Bechdel's *Fun Home*  
Anna Malone
- 5:45 8. Islamophobia in the Heart of Texas  
Courtney Cockrell, Jonathan McAtee

### Connie McNab Ballroom

- 5:00 9. Reproductive Timing of Eurycea Naufregia at Two Spring Sites  
Kira McEntire
- 5:15 10. The Pink Predicament: Pomacea Insularum Eggs Fail to Deter Predation by Red-  
Eared Sliders (Trachemys Scripta Elegans)  
Allyson Plantz
- 5:30 11. Possible Hormonal Regulation of the Tight Junction Proteins Claudin-3 and -4  
Breast Epithelial and Endometrial Cancer Cells  
Jenna Gaska
- 5:45 12. A Comparative Analysis of the United States and Danish Healthcare Systems  
Katlyn Hoover

### **Merzbach Room**

- 5:00 13. Mathematics from a Feminist Perspective  
Kylie LeBlanc, Zach Anglin
- 5:15 14. A Road Made By Walking: The Mobilization of Indignation Out of Authoritarian Memory and Community Identity in Spain's Marcha Indignada Popular 2011  
Kate Hayden
- 5:30 15. The Shirtwaist Strike of 1909: A Revolution of the Lost and Forgotten  
Erin Bradley
- 5:45 16. Carbon Sequestration as Neo-Colonialism: Questioning Carbon Markets through the Costa Rican Imaginary  
Vanessa Torro

### **Margaret Shilling Room**

- 5:00 17. Rethinking the Banking Industry: A Critical Analysis of Fractional-Reserve Banking  
Alexander Blake
- 5:15 18. Moving Toward a Steady State Economy: Historic and Present Visions of the Endgame of Economics  
Kristen Dettloff
- 5:30 19. Reassessment of the United Kingdom's Decision to Not Join the Euro  
Alex Vargas
- 5:45 20. Alternative Currency: An Evaluation of the Difficulties and Benefits of Local Currency Systems  
Justice Kinley

### **Roy B. Shilling, Jr. Room**

- 5:00 21. Deng's 'One Child' Policy: A Case Study in the Ethics of Social Engineering  
David Bell
- 5:15 22. Pork Barreling Politics and NAFTA  
David Gonzalez
- 5:30 23. Alan Garcia, Peruvian Leader Who Made Decisions Which Would Cause National Havoc: Was this a Matter of Ethics?  
Anna Rivera
- 5:45 24. The Clinton-Lewinsky Affair: A Case Study in Contemporary Political Sex Scandals  
Evan Schmitt

## **INTRODUCTORY AND WELCOMING**

### **Bishops Lounge**

- 6:00 Introductory Remarks by Program Chair Chrissy Vasquez  
Welcoming Remarks by Southwestern University President Jake B. Schrum

## CREATIVE WORKS AND EXHIBITION

### Sarofim School of Fine Arts Jim and Pat Walzel Lobby

- 6:10      55. Untitled I  
              Morgan Bailey  
              56. Bite  
              Jessica Cox  
              57. The Product  
              Kim Dembrosky  
              58. Blurred Perception  
              Jenna Foster  
              59. Teethed to The Arm  
              Noel Kalmus  
              60. Lure  
              Julia Page  
              61. Red Nest  
              Rachel Sellars

### Bishops Lounge

- 6:30      63. Civic Engagement in the Information Age  
              Stephen Brown, Huy Nguyen, Ethan Banner  
              64. Programming Poetry: The Adaption of Art and Art of Adaptation  
              Addison Dean, Stephen Brown  
              65. Piezoelectric Energy Harvester  
              Karl Kleinsasser  
7:30      66. Southwestern University String Quartet Performance  
              Maria Smith, Erin Weber, Katie DeLa Vega, Emilio Alverez

## POSTER PRESENTATIONS

### Bishops Lounge

- 6:30      Poster Presentations (67-110)

## ORAL PRESENTATIONS (cont')

### Lynda McCombs Ballroom

- 7:45      25. Smudging It: Blurring the Boundaries of Feminism and Art  
              Kelly Johnson  
8:00      26. The Art of Collective Identity: How an Art from the Streets Program Fosters a Sense  
              of Community Among the Homeless  
              Kristen McCollum

- 8:15 27. Newspaper Portrayals of Home Invasion Robbery  
Will Molidor, Andrew Cantu
- 8:30 28. I'm A Youth Who Wants My House Back: An Analysis of How a Free Space Becomes  
Unsafe  
Abby Morales
- 8:45 29. You and I Will Change the World: Jewish Values, Identity and Social Activism  
Ethan Lane-Miller

### **Marsha Shields Ballroom**

- 7:45 30. A Mathematical Model of Body Surface Area  
Nina Freeman
- 8:00 31. A Mathematical View of Air Pollution  
Yvette Niyomugaba, Zoe Pham
- 8:15 32. Georgetown Project Internship  
Jamie Hodges
- 8:30 33. The Efficacy of Access to Water  
Kynan Murtagh
- 8:45 34. High School and College Completion of Second Generation Americans  
Van Pham

### **Connie McNab Ballroom**

- 7:45 35. St. Justin and the Graeco-Roman world: An Analysis of Justin's Presentation of  
Christianity as the Fulfillment of Graeco-Roman Tradition  
Donald Frye
- 8:00 36. The Self-Castration of Attis in Catullus 63: An Analogy for Roman Anxiety During the  
Late Republic  
Jenna Gaska
- 8:15 37. Antigone Re-Crystallized: Ancient Myth in Modern Times  
Georgia LoSchiavo
- 8:30 38. Centered Absence: Louise Erdrich's Identity Creation in *Love Medicine* and the  
*Plague of Doves*  
Hayley Hervieux

### **Merzbach Room**

- 7:45 39. Recreating Active Consent in American Citizenship  
Jennifer Mozingo
- 8:00 40. Publishing Dissent: Agency and Activism in the "Lowell Offering"  
Susan Garrard
- 8:15 41. Passing the Raj's Torch: The Indianization of the British Indian Army  
Christopher Paulos
- 8:30 42. Assessing the Local Food Landscape in Central Texas: Access, Obstacles, and  
Consumer Motivations  
Kate Castles, Whitney Moore, Molly O'Hara, Ben Parafina
- 8:45 43. Apples to Apples: A Qualitative Price Comparison Study of Central Texas Food  
Markets  
Jillian Curran, Harrison Glaser, Ellen Hoyer, Lisa Morse

### **Margaret Shilling Room**

- 7:30 44. Out of Oil  
Colin Smith
- 7:45 45. Helping the Poor Help Themselves: An Analysis of Microfinance's Effectiveness for  
Poverty Alleviation  
Kari Shearer
- 8:00 46. The Misunderstood Topsoil of our Economy: Entrepreneurs  
Kavita Singh
- 8:15 47. Preventing Predatory Lending: Is Dodd-Frank the Way?  
Jenna Mossbarger
- 8:30 48. International Labor Mobility  
Cameron Fanning
- 8:45 49. Impact of Illegal Immigrants on the Economy of the Southeastern United States  
Joshua Martin

### **Roy B. Shilling, Jr. Room**

- 7:45 50. A.Q Khan and the Ethics of Nuclear Proliferation  
Andrew Ivey
- 8:00 51. Mexico's War on Drug Cartels: A Glimpse Into Nuevo Laredo's Media "Self-  
Censorship"  
Miguel Caballero
- 8:15 52. Ethical Dilemmas in Operation Fast and Furious  
Gabrielle Eggleston
- 8:45 53. Demoralized: How Culture Has Created a Market for Sex Slavery  
Rebekah Gomez
- 9:00 54. Super PACs: Triumph or Defeat for the First Amendment?  
Justin Williamson



## ORAL PRESENTATIONS

1. Swapping Frog Legs for Fries: Identity, Food and Globalization in Toulouse, France  
Elizabeth Marzec, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

The anthropological study of food has emerged as an up and coming field in the past ten years. In Ms. Marzec's ethnographic research for her senior capstone project, food and identity couple themselves with one of the most prevalent issues in contemporary society: globalization. Drawn from her larger research project, a study on how globalization interacts with French cultural understandings of food, this piece discusses how the French create and sustain their identity in the face of globalization through two examples: 1) where they choose to buy their produce and 2) how they view and use fast food. Although the majority of her subjects refused to acknowledge that globalization has had a direct impact on their lives and cultural identity, what she observed through her participant observation in the home and in daily life in Toulouse, France, as well as during interviews, proved otherwise. Ms. Marzec found that in some way each of her eleven participants supported the notion of "protectionism" – that is, the theory that is commonly connected to anti-globalization and tries to limit foreign influences in economics, government and society as a whole. While older generations in France transfer and preserve the cultural capital surrounding food, the influx and accessibility of new products is slowly tempting French culture, into a homogenized new world.

2. The Story of Adherence: Staying Alive with HIV/AIDS  
Meagan Moore, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

Antiretroviral therapy can keep a person infected with HIV alive for decades longer than the person would have lived ten years ago. This therapy also lowers the rate of transmission of the disease by lowering the amount of the virus in the body. Antiretroviral therapy is a topic important to anyone infected with the virus or anyone at risk for the virus. Despite its many benefits, the levels of adherence [rate of faithfulness to the medication] are surprisingly low. The story of adherence is complicated and goes beyond the biological, because it is the sole treatment for a stigmatized and incurable disease. Drawing on ethnographic research conducted in Arica, Chile, this presentation will examine the ways in which locating stories of adherence can be just as complicated as the subject itself.

3. The Interaction of the Alternative, the Ancestral, and the Western Medicine: A Modern Representation of the Castas System  
Adriana Saad, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

In this presentation I will discuss the Hospital Andino Alternativo de Chimborazo (HAACH) in Ecuador, where I interned and conducted ethnographic research for my anthropology capstone in Spring 2011. HAACH provides Western medicine, alternative medicine, and indigenous medicine to its patients. It is located in Riobamba, the capital of the Province of Chimborazo in the center of Ecuador. Riobamba once had rich lands dedicated to agriculture and ranching, which included haciendas worked by indigenous populations who were forced into indentured servitude. After an agrarian reform of property, the haciendas were dismantled and the indigenous people regained possession of the land. While the agricultural economy was lost, remnants of the social hierarchy put in place during that period remain, which I argue is reflected and ingrained in the HAACH and the Ecuadorian

peoples. In my presentation I will discuss the three areas of the hospital, and by way of ethnographic data, offer my analysis as to why this hospital, although advanced in its design, is flawed in practice. That is, combined, the spatial divisions that exist within the hospital, the newfound nationwide vision of interculturalidad (interculturality or multiculturalism), and the success of ethno-tourism, have resulted in a social hierarchy within the hospital that reflects Ecuadorian society. Although the mission of the hospital is attempting a progressive concept, my presentation will show that in reality, it is regressive. The interactions and divisions within the hospital represent a familiar colonial hierarchical order, resembling that of the castas system but in modern day practice.

4. Balinese Food, Identity, and Tourism  
Katherine Kemper, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

Ms. Kemper will examine tourism in Bali, Indonesia through the food industry. In it, she will examine why tourist restaurants serve non-traditional food but claim it as traditional. Food is important in understanding another culture. Does serving food that is not traditional spread a false message about Balinese culture? To attempt to answer this question, Ms. Kemper travelled to Bali, Indonesia, and conducted interviews as well as participant observation with restaurant owners, local people, tourists, and chefs. Furthermore, she examined how the changing culinary industry has affected local people's identity. Locals do not want to change traditional menus to satisfy tourists' wants and they are upset about having to do so. Also, the tourist industry will be examined because it has a significant motive in changing food. Ms. Kemper examines how and why the industry is changing and it affects the people in Bali. In Ms. Kemper's research she found out that local Balinese people do not like to serve Western and European food and they feel like their identity is being falsely assumed by tourists. Ms. Kemper also found that tourists are the ones that demand for the menus to be changed because they do not like the spice, look, and texture of traditional food.

5. Identidad, Lenguaje, y el Estudio en el Extranjero: Hablantes Nativos del Español y los Cambios de Identidad  
Milly Arcovedo, Modern Languages and Literatures Department (Spanish)  
Sponsor: Dr. Abigail Dings

En este estudio sociolingüístico, se evalúan los cambios en la identidad y en la manera de hablar de los estudiantes hispano hablantes nativos después de sus estudios en el extranjero en un país hispano hablante. El propósito de este estudio es evaluar los cambios que los hablantes nativos experimentan. Se interesa ver cómo los participantes se identifican en ser latino/a, a través de como ellos recuerdan sus hábitos lingüísticos antes y después de irse al extranjero y cómo perciben el país anfitrión y el país materno. Se evalúa la manera de comunicarse, como se identifican, y sus opiniones sobre su país materno, esto determina cómo se han o no se han adaptado al país anfitrión, suponiendo que algo ha cambiado. El sentimiento de la universalidad ha influido sus identidades, lo cual hace que estos estudiantes adopten un elemento de la cultura nativa del país. A través de entrevistas, con preguntas exclusivas y directas a sus cambios, se han notado las diferencias en ambos: la identidad y el idioma.

6. Luther in Film  
Rory Jones, Modern Languages and Literatures Department (German)  
Sponsor: Dr. Erika Berroth

This project focuses on the different portrayals of Martin Luther, the German hero of the Protestant Reformation, in film. The context of each of the films and its desired message is analyzed through cultural and film analysis. After determining the historical circumstances surrounding the production of each of the films, Mr. Jones analyzed how the films achieved their desired outcomes. One film was made in the early 1980's in the former GDR, while the two others were made in early 21st century America. Each of the films creates a 'myth' surrounding Luther that is to the advantage of the producers and accomplishes the aims of the interests behind the film. The GDR film serves as a propaganda piece to incorporate Luther, a previous 'outsider' when discussing good socialist ideas, into the national consciousness as a socialist leader. The PBS film seeks to provide viewers with a highly informative look at how Luther changed and shaped the world. One of the third film's primary uses is as a tool to educate and inform Lutherans about the originator of some of the doctrine by which they live. It was produced by MGM. In conclusion, each of the films portrays a 'different' Luther and uses him to fit their needs. The research also proposed further debate about how well this model can be used for other historical figures and in other forms of culture.

7. Autobiography and Truth-Telling: From Derrida to Alison Bechdel's *Fun Home*  
Anna Malone, English Department  
Sponsor: Dr. Carina Evans

This project investigates the popular and critical success of Alison Bechdel's *Fun Home* in 2006, and the possible implications of this success. *Fun Home* is a graphic autobiography, categorized as an idiosyncratic and emergent genre, in which phonetic writing, pictures, and the spatial gaps between these elements draw attention to the narrative act of truth-telling, which always necessitates a construction of meaning, an act of ordering that is neither essential or capable of universalization. Ms. Malone will argue that Bechdel's unique formal choices enable her work to surpass the institutional confines of logo centrism, as defined by Derrida. This inter-generational account of her childhood, and her childhood perceptions of her father, is a textual instance where the temporality of interpretation and style become self-consciously legible, allowing the theorizing of identity to occur in unconventional ways. If poststructuralist theory seeks to deconstruct dominant narratives of knowledge, indicating possible sites of displacement, then *Fun Home* becomes such a site of displacement, revealing the ways alternative knowledge functions within the world, emerging outside of recognized or legitimized forums. The recent validation of graphic novels and autobiographies as texts not only worthy of, but crucial to, philosophical and cultural inquiry reveals the radical potential of the form. Acting at once as archive, autobiography, biography, fiction, and theory, but also refusing to act as any of these genres as they are dominantly defined, Alison Bechdel's *Fun Home* offers a uniquely comprehensive example of this subversive potential. *Fun Home* "tells the truth" in a new and different way.

8. Islamophobia in the Heart of Texas  
Courtney Cockrell, Jonathan McAtee, Religion and Philosophy Department  
Sponsor: Dr. Eric Selbin

Ms. Cockrell investigates the recent controversy surrounding the teaching of Arabic in Texas public schools. The project examines the intensely negative reactions from parents and community members that arose when a school district in Texas received a grant from

the Department of Education to incorporate the teaching of Arabic language and culture into its curriculum. Preliminary research in the form of interviews with those involved, an examination of local news sources, and a look at the political and social consciousness of the town indicate that many of those opposed to the grant associate Arabic language and culture with Islam. A further exploration of the community's attitude towards the Islamic faith reveals deeply rooted feelings of Islamophobia due to perceptions about the culture in Muslim countries, the status of women within Muslim communities, and a general fear of the unknown. This presentation explores the phenomenon of Islamophobia through an analysis of the controversy surrounding the teaching of Arabic in Texas schools.

9. Reproductive Timing of *Eurycea Naufregia* at Two Spring Sites  
Kira McEntire, Biology Department  
Sponsor: Dr. Benjamin Pierce

The Georgetown salamander, *Eurycea naufragia*, is an endemic, spring dwelling, neotenic salamander found only at 15 sites in Williamson County, Texas. Little is currently known about the life history of this species. Monthly visual encounter surveys were conducted at two sites, Swinbank Spring (starting in 2007) and Twin Springs Preserve (starting in 2008). During the visual encounter surveys, each salamander observed was assigned to one of three size classes; 1 (less than 2.5 cm), 2 (2.5 - 5.1 cm), or 3 (greater than 5.1 cm). Since June 2010, Ms. McEntire has captured salamanders and examined them for the presence of eggs to determine the timing of reproduction. A higher proportion of gravid females were observed during months of November through April than months May through October at Swinbank Spring ( $P < 0.0001$ ) and Twin Springs ( $P < 0.0001$ ). Very few salamanders in the smallest size class were observed throughout the study, and therefore analysis of size classes was restricted to size classes 2 and 3. A higher proportion of size class 2 salamanders was observed from May through October, as compared to November through April, at Twin Springs ( $P < 0.001$ ), but this trend was not observed at Swinbank Spring ( $P = 0.7000$ ). These results indicate a winter reproductive season for the species.

10. The Pink Predicament: *Pomacea Insularum* Eggs Fail to Deter Predation by Red-Eared Sliders (*Trachemys Scripta Elegans*)  
Allyson Plantz, Biology Department  
Sponsor: Dr. Romi Burks

The egg stage represents a highly vulnerable period in the development of apple snails (Genus *Pomacea*). Unlike most aquatic invertebrates, female *Pomacea insularum* posit vividly pink clutches above the water where they remain exposed to the air for 7-14 days of development. However, despite their obvious nature, little damage to clutches occurs in the field. In addition, past studies document only a few species as predators of *P. insularum* eggs, specifically the red imported fire ant (*Solenopsis gemanata*) and the land snail (*Quantula striata*). Our first round of experiments demonstrated egg consumption by red-eared sliders (*Trachemys scripta elegans*) (unpublished data). In these studies, juvenile and adult turtles consumed a greater proportion of real *P. insularum* eggs than ground eggs diluted by sodium alginate. To determine effects of chemical composition (i.e. presence of egg protein) and/or coloration (i.e. pink) on the consumption of *P. insularum* eggs, Ms. Plantz conducted a 2x2 factorial experiment ( $N=3$ ). Twelve adult turtles received one of four varieties of individual fake eggs created with sodium alginate: No content/No color, No content/color, Content/No color, and Content/Color. Eggs with content contained perivitellin fluid from freshly ground *P. insularum* eggs while eggs with color contained food dye modified to match the natural hue of *P. insularum* eggs. Results from experimentation revealed consistent consumption ( $34.17 \pm 37.01$ ) across the board with no evident

preference for one treatment over another. These findings perhaps indicate that the chemical component of *P. insularum* eggs fails to deter predation by red-eared sliders.

11. Possible Hormonal Regulation of the Tight Junction Proteins Claudin-3 and -4 in Breast Epithelial and Endometrial Cancer Cells  
Jenna Gaska, Biology Department  
Sponsor: Dr. Maria Cuevas

The claudin (CLDN) family consists of 24 tetraspan membrane proteins that are essential for the formation and proper function of tight junctions (TJs). Furthermore, alterations in CLDN gene expression have been shown to be associated with a variety of cancers. Ms. Gaska's research has previously shown gross over expression of CLDN-3 in the breast cancer cell line MCF-7. Furthermore, she has consistently observed expression of CLDN-3 in all four subcellular fractions of MCF-7 cells, with the bulk of expression in the membrane fraction. The purpose of this study was to examine the expression and sub-cellular localization of CLDN-3 and CLDN-4 in the endometrial cancer cell line, HEC-1A, and the expression and subcellular localization of CLDN-4 in MCF-7. Additionally, the possible role of estradiol (E2) on CLDN-3/CLDN-4 expression and subcellular localization in both cell lines was analyzed. Like CLDN-3, over expression of claudin-4 was observed in the breast cancer cell line MCF-7. In addition, Ms. Gaska observed expression of CLDN-3 and CLDN-4 in both endometrial (HEC-1A and RL95-2) cancer cell lines. CLDN-4 immunoreactivity was detected in both the cytosol and membrane fractions of HEC-1A, with a faint band seen in the nucleus. In contrast, MCF-7 demonstrated expression of CLDN-4 in the membrane, nuclear, cytosolic and to a lesser extent, in the cytoskeletal fractions. CLDN-3 immunoreactivity was detected in the cytosol, membrane and nuclear fractions of HEC1A with no signal detected in the cytoskeletal fraction. All subcellular fractions showed CLDN-3 immunoreactivity in MCF-7 cells. E2 appears to have a biphasic effect on CLDN-4 expression.

12. A Comparative Analysis of the United States and Danish Healthcare Systems  
Katlyn Hoover, Biology Department  
Sponsor: Dr. Romi Burks

The Affordable Care Act signed by President Obama and Congress in early 2010 has sparked great debate within our country in regards to the future of United States healthcare. The Affordable Care Act seeks to expand healthcare coverage to all Americans, help small business owners provide healthcare insurance to their employees, and prevent denial of insurance to those with a preexisting condition. The implementation of this Act will bring about many changes to the private, insurance-based system we currently operate under in the United States. Many countries have already implemented universal healthcare systems, one of these being Denmark. This analysis of United States healthcare reform will be informed by universal healthcare data gathered through academic and personal experiences while abroad in Copenhagen, Denmark. Additionally, a comparison of universal medicine to the current healthcare system in the United States will be conducted. A critical examination of these diverse operating systems will be advantageous during this time of healthcare reform in our country.

13. Mathematics from a Feminist Perspective  
Kylie LeBlanc, Anglin, Political Science Department  
Sponsor: Dr. Fumiko Futamura

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14. A Road Made By Walking: The Mobilization of Indignation Out of Authoritarian Memory and Community Identity in Spain's *Marcha Indignada Popular* 2011  
Kate Hayden, Political Science Department  
Sponsor: Dr. Eric Selbin

Social movements continue to proliferate as more people seek new means and methods for mobilization and avenues for change. One of the most recent and interesting of these was Spain's *Marcha Indignada Popular* beginning in May 2011 and their compelling demands for dignity and change, a new wave of Spanish identity following the trauma of repression and silence during the Franco dictatorship. This paper seeks to set-up a working framework for this moment of resistance against the dominant paradigm of the country's political elite and economic turmoil in Spain utilizing the uniqueness of cultural identity for this case study. This research utilizes an analysis of authoritarian legacy that formed a society fearful of challenging authority, begging the question of how a country that has been historically reactionary can transform to being revolutionary. This research interrogates assumptions about Spanish community identity today and what the country would need ideologically in order to move out of a stage of revolutionary imagination into one of successful revolutionary situation given that the *Indignado* protests have yet to make that leap, due mainly to economic situation as opposed to overwhelming situations of ideology in similar uprisings in the Arab Spring. However, the impact of place and belongingness embodied in this movement speaks to the political withdrawal and alienation felt by a large demographic in the country, and within this political system of paradox there exists a new influx of ideas that have challenged historical trauma and provide new implications for future moments of dissent.

15. The Shirtwaist Strike of 1909: A Revolution of the Lost and Forgotten  
Erin Bradley, Political Science Department  
Sponsor: Dr. Eric Selbin

The Shirtwaist Strike of 1909, also known as the Uprising of the 20,000, was the first successful major uprising of female workers in the United States. Yet, it seems to be little more than a footnote, at best, all but forgotten by labor historians and absent from studies of resistance and struggle. This project seeks to recuperate this important "lost" moment via primary research through contemporaneous documents in New York University's Wagner Labor Archive and the lens of Selbin's "Lost and Forgotten Revolutions" (2010) and rescue these strikers and their struggle from undeserved obscurity. The few histories of this struggle have framed it from the perspective of a few strike leaders and prominent factory owners. This investigation seeks to deepen and broaden such historiographical efforts. The depth derives from reconsidering the strike from the perspective of the strikers and specifically the young immigrant Jewish woman of the Lower East Side. Knowledge of the strikers' heritage and turn-of-the-century Lower East Side society reveal a multitude of factors that together produced a group of individuals primed to lead their own social revolution. Setting these variables into a broader socio-political framework enriches the understanding by considering how the strikers overcame barriers of age, sex, ethnicity, class, religion, education, family expectations, and even language to construct a story that allowed a group of poor immigrant women to band together and change their world and ours.

16. Carbon Sequestration as Neo-Colonialism: Questioning Carbon Markets through the Costa Rican Imaginary  
Vanessa Toro, Environmental Studies Program  
Sponsor: Dr. Laura Hobgood-Oster

Set against a regional backdrop of perceived racial and ethnic diversity and political instability, the country of Costa Rica distinguishes itself from its Central American neighbors as a nation of racial homogeneity, political stability, and, recently, environmental sustainability. Costa Rica's "imaginary" is the product of a complex historical process of environmental, geographical, political, and economic influences, all of which evolved in concert to create the imagined geography of a peaceful and conservation-minded nation made possible because of racial hegemony and an appeal to Western economic interests. This national imaginary discriminatorily conceals Costa Rica's racial and ethnic heterogeneity and land-use conflicts, a suppression which results today in a conservation movement that highlights environmental sustainability while compromising social justice goals. In this paper, I show how the Costa Rican national imaginary is facilitating Costa Rica's swift adoption of the market-based forest carbon sequestration scheme, REDD-plus, as a means to address global climate change and environmental sustainability. While seemingly beneficial, current carbon market models leave unquestioned both the influence of Western economic and political hegemony for realizing REDD-plus as an international accord and the concomitant social and economic inequalities present in the proposed sites for REDD-plus projects. Consequently, though REDD-plus is claimed to address forest protection and address economic livelihood concerns, implementation of REDD-plus within the Costa Rican imaginary ultimately makes addressing environmental sustainability and social equality within the nation a more distant goal.

17. Rethinking the Banking Industry: A Critical Analysis of Fractional-Reserve Banking  
Alexander Blake, Economics and Business Department  
Sponsor: Dr. Emily Northrop

Mr. Blake explores the benefits and consequences of the Glass-Steagall Act of 1933 and the deregulation of the 1980s on the banking industry. The banking industry, as well as the economy as a whole, enjoyed an unprecedented amount of stability and growth throughout the time period the legislation was active, yet deregulation ensued during the 1980s, which resulted in economic turbulence still felt today. It is proposed that a merger of investment and deposit banking combined with the fractional reserve system led to over-leveraging in the banking industry, as well as inflationary effects within the monetary system. A solution that considers a free banking alternative will be presented in conclusion as a contrast to these historical examples, as it includes unexplored possibilities concerning bank stability and inflation control.

18. Moving Toward a Steady State Economy: Historic and Present Visions of the Endgame of Economics  
Kristen Dettloff, Economics and Business Department  
Sponsor: Dr. Emily Northrop

From the cradle of modern economic thought, in Adam Smith's seminal magnum opus, *An Inquiry into the Nature and Causes of the Wealth of Nations*, in 1776, to the present day forefront of the field of ecological economics, many prominent economists such as Smith, David Ricardo, J.S. Mill, John Maynard Keynes, Nicholas Georgescu-Roegen, and Herman Daly have supported various and persuasive theories that there must be some endpoint to all economic growth, some steady or stationary state economy that is defined by stable population and consumption levels. The visions for how, why, and when that state would

come about and what it would look like cross paths and diverge again among many of these economists' greatest works. Likewise, the public's and other economists' reception of these ideas throughout history has been varied. Like virtually all economic theories that have entered the gauntlet of history, these ideas of a steady state economy sprout, are questioned, tested, refuted, buried, rediscovered, revised, retested, refined again, held as common doctrine, fall out of favor, and then buried again. But one common thread about the steady state economy is that it is one subject that does not stay buried for long, particularly not in times of economic uncertainty, and at present is very much alive and growing in strength and momentum. Ms. Dettloff research entails a comparative survey of historic and modern economists' perspectives on the stationary- or steady-state economy using prominent economists' original texts and historical background information as well.

19. Reassessment of the United Kingdom's Decision to Not Join the Euro  
Alex Vargas, Economics and Business Department  
Sponsor: Dr. Emily Northrop

With the crisis that has unfolded over the past decade, it is axiomatic that reassessment of some national policies are in order. The European Union is in disarray over the Greek debt crisis and fears future misfortune if the rest of the PIGS (Portugal, Ireland, Greece, and Spain) follow suit. However, there is a member of the EU that interacts far differently than the rest of its collaborators due to a decision made over a decade ago. England, which falls under the EU membership without having adopted the Euro, has had a different history leading up to the crisis and will undoubtedly endure the crisis with a different set of policy and economic actions. Ms. Vargas focuses on whether that decision over a decade ago to remain outside of the Euro currency has proven to be beneficial for the country both economically and politically. Analyzing Gordon Browns "Five Tests", meant to act as goals to be met before accepting the Euro, Ms. Vargas plans to assess the decision based on current literature and data to determine whether choosing to steer clear of the new currency has proven beneficial after the recent stress test.

20. Alternative Currency: An Evaluation of the Difficulties and Benefits of Local Currency Systems  
Justice Kinley, Economics and Business Department  
Sponsor: Dr. Emily Northrop

The recent 2007 global economic crisis or "Great Recession" has shaken global confidence in the current formal economic system and has piqued interest in alternative economic practices. Founded in alternative sustainable economics, alternative currency and further local currency are means of promoting local economies and empowering those marginalized by the capitalist economic system. Local currencies have been used alongside centralized currency reaching back to tenth century Europe, all the way into the issuance of script in the great depression. This paper analyzes the benefits and obstacles of successfully implementing a local currency system through the evaluation of one example of each basic type of community currency: Local Exchange Trading Systems, the Hours system, and the highly successful Berkshire model. Through the experiences of Manchester LETS, Ithaca Hours, and Berkshire bucks, Mr. Kinley explores how local currency operates and its effects on the community that employs this strategy. Further, he will provide evidence that the use of local currency fosters communal behavior, helps protect local businesses from the mounting pressures of globalization, supports and stimulates the local economy by improving networks of individuals to harness skills not employed in the formal economy, and by keeping the products of that unharnessed skill in the local community.

21. Deng's 'One Child' Policy: A Case Study in the Ethics of Social Engineering  
David Bell, Political Science Department  
Sponsor: Dr. Timothy O'Neill

Using the theory of decision making contained in Richard Neustadt and Ernest May's "*Thinking in Time*", Mr. Bell asks if Deng Xiaoping's decision to implement China's 'one child' policy - in which most Chinese families are allowed only one child - is ethically justified according to utilitarian theory.

22. Pork Barreling Politics and NAFTA  
David Gonzalez, Political Science Department  
Sponsor: Dr. Timothy O'Neill

NAFTA, the North American Free Trade Agreement was signed into effect on January 1<sup>st</sup>, 1994. The treaty enabled the three countries to have a tariff free zone but were the pork barrel side payments that Bill Clinton gave to get NAFTA passed justifiable by John Stuart Mill's Theory of Rule Utilitarianism? Rule utilitarianism can be summarized in the following statement: "An action is right if it follows a rule that is justified because it generally results in the greatest quality of happiness for the greatest number." Through Mill's theory, Mr. Gonzalez will analyze Clinton's usage of side payments. He will analyze how the decision affected American workers and the costs and benefits that were implemented before its implementation, during Clinton's administration, and its future visible effects on workers in America. In answering these questions Mr. Gonzalez will rely on various sources both academic and in the popular media. This research will help to reveal how one of the most important treaties in our nation was passed using methods that may not have been justifiable under Mill's theory.

23. Alan Garcia, Peruvian Leader Who Made Decisions Which Would Cause National Havoc: Was this a Matter of Ethics?  
Ana Rivera, Political Science Department  
Sponsor: Dr. Timothy O'Neill

Ms. Rivera will make a consequentialist analysis of the repercussions of unethical decisions made by an idealistic and postmodernist leader in a developing liberal democracy. Alan Garcia was Peru's president during two non-consecutive terms. During his first term he was the youngest president in Peruvian history; his lack of experience made him overly ambitious and optimistic, leading his people into an unrealistic course of action that could never come about. Garcia experienced three main challenges: he lacked political experience as well as military support and faced a destructive economic abyss. Moreover, corruption pushed him from two strong angles: on one hand he felt extreme party pressure to hold on to power and publicize his party's image, on the other he felt an inevitable imperialist influence that lured him into its power and deviated from his populist ideology. Thus, could making the ethical decision to be faithful to his election campaign regardless of the difficulty of doing so and not give into corruption have considerably changed the outcome of his first administration and possibly avoided the empowerment of terrorist group Sendero Luminoso?

24. The Clinton-Lewinsky Affair: A Case Study In Contemporary Political Sex Scandals  
Evan Schmitt, Political Science Department  
Sponsor: Dr. Timothy O'Neill

This presentation will analyze the Clinton-Lewinsky scandal through two conceptual frameworks: institutional and political. From the institutional perspective, Clinton fared poorly in the courts at all levels and faced a hostile legislative branch. However, politically Clinton enjoyed above average job approval ratings and popular support throughout the scandal. Ms Schmitt will elucidate how Clinton negotiated these two realms to his own benefit to avoid impeachment and public condemnation. He will conclude by analyzing the consequences of the scandal (or lack thereof) on the institution of the presidency and locate the Clinton affair in the context of more contemporary political sex scandals.

25. Smudging It: Blurring the Boundaries of Feminism and Art  
Kelly Johnson, Art and Art History Department  
Sponsor: Dr. Helene Meyers

While living in New York City and interning at the Brooklyn and Whitney Museums last year, Ms. Johnson explored her developing feminist consciousness as she experienced life in a more feminist-conducive space. During this time she became particularly interested in 'real world' practicalities of properly engaging in feminism, eventually realizing that language, as the foundation of all communication and expression, is crucial to the movement. Stemming from Ms. Johnson's primary interest in art, she proceeded to design a creative project in the tradition of the Guerrilla Girls to address the need for a critical look at rhetoric through visual presentation. "Smudging It" consists of five posters and handouts which propose to blur the boundaries of feminism and art. Each work responds to the real need for critical attention to language and framing of feminist issues as the movement, which is still very necessary and possibly still misunderstood, continues to keep itself relevant. Looking closely at how feminist ideas might be re-presented in a meaningful, activist way, this project engages with issues including: exploring fundamental ways to recognize yourself and others as feminists, how males can be included in the discussion of feminism, the interpretation of museum/institutional structures as progressive or prejudiced, the awareness and promotion of socially diverse and responsible museums/institutions, and the questioning of institutional decisions as feminist/anti-feminist. Collectively, these topics and their corresponding works engage actively with social issues at both individual and institutional levels that are important to considerations of feminism today.

26. The Art of Collective Identity: How an Art from the Streets Program Fosters a Sense of Community Among the Homeless  
Kristen McCollum, Sociology and Anthropology Department  
Sponsor: Dr. Maria Lowe

Ms. Collum explores the role that identities play in creating and maintaining a sense of community in an organization supporting homeless artists in the South. Couched in the social movement's literature on collective identity, this study examines the ways individual identities contribute to an overall collective identity of artists and volunteers within the organization Art from the Streets (AFTS). Relying on organizational materials, face-to-face interviews, and participant observation conducted from August to December 2011, the current research finds that AFTS creates a space where homeless individuals can negotiate the stigmatized identities they experience on the streets and adopt a more empowering identity. In the process, the organization fosters a collective identity among all members. Ms. Collum adds to the existing social movement's scholarship by examining

how an empowering collective identity is formed among members with individual identities that are traditionally considered stigmatized in larger society.

27. Newspaper Portrayals of Home Invasion Robbery

Will Molidor, Andrew Cantu, Sociology and Anthropology Department

Sponsor: Dr. Reginald Byron

Although chilling anecdotes of home invasion robbery (HIR) have entered into the public consciousness, there are few analyses of this crime. Mr. Molidor and Mr. Cantu utilize over 350 media reported cases of HIR drawn from eight geographically representative United States newspapers (2006-2011). While many studies highlight a significant skew in newspaper reports of violent crime, our mixed-methods results suggest that in the aggregate, newspaper portrayals of HIR are largely consistent with existing small sample studies and can be framed by Cohen and Felson's routine activity theory. Specifically, most HIR events in this study occurred during the week and in the nighttime when capable guardianship is low. Moreover, most HIR crimes were committed by 2-3 male assailants who selected specific houses under the assumption that significant amounts of money or valuables would be inside. They conclude by discussing the advantages and limitations of using newspapers for such an analysis when no other HIR data exist.

28. I'm A Youth Who Wants My House Back: An Analysis of How a Free Space Becomes Unsafe

Abby Morales, Sociology and Anthropology Department

Sponsor: Dr. Maria Lowe

Ms. Morales examines how members of a non-profit organization in Central Texas, that provides a safe space and therapy for Lesbian, Gay, Bi-Sexual, and Transgendered youth, is responding to the recent layoff of the group's cofounder. Ms. Morales relied on in-depth interviews, participant observation, and textual analysis of organizational materials gathered from August 2011 to December 2011. Findings show that many of the youth, volunteers and staff feel this "free space" is no longer safe. The research will fill a gap in the literature by analyzing how a free space becomes unsafe, how this affects the social movement community, and causes the formation of a new social movement's community.

29. You and I Will Change the World: Jewish Values, Identity and Social Activism

Ethan Lane-Miller, Sociology and Anthropology Department

Sponsor: Dr. Maria Lowe

Previous research has analyzed the ways in Reform Jewish identity is constructed in a way that includes the ideals of social justice and social activism. Research has identified that conflict and tension can arise in the construction of this identity. The ways in which Reform Jewish identity is constructed and the conflicts that can arise in this construction are both analyzed. Research was conducted from September 2011 through December 2011 and consisted of over 30 hours of participant observation at a Reform congregation in central Texas, six in-depth structured interviews with members of the congregation, and a textual analysis of organizational materials. Findings indicate that social justice and social activism are important parts of Reform Jewish identity, that this identity is negotiated through intergenerational interactions, and that tensions can arise in cultivating and acting on this identity.

30. A Mathematical Model of Body Surface Area  
Nina Freeman, Mathematics and Computer Science Department  
Sponsor: Dr. Therese Shelton

The use of a simple and standard formula for determining Body Surface Area (BSA) is paramount to ensuring optimal treatment in a medical facility for some treatments. BSA is the total surface area of the human body, and a number of different formulas have been developed over the years to calculate it. Many investigators have questioned the accuracy and precision in these formulas due to their under and over estimation that are potentially life threatening. Actual measurement of BSA is extremely difficult, so Ms. Freeman's objective is to find an appropriate model for calculating BSA for standardized use. She gathered data from 19 body measurements and applied a geometric model to estimate BSA. Then she was able to fit a standard form of an exponential model to her data and from this she created a model of body surface area based on height and weight. Lastly, Ms. Freeman's results were compared to those previously published.

31. A Mathematical View of Air Pollution  
Yvette Niyomugaba, Zoe Pham, Mathematics and Computer Science Department  
Sponsor: Dr. Therese Shelton

Air pollution contributes to global warming and generally negatively impacts human and other life. The Mathematical Guassian model will be explained and implemented in the computer algebra system Mathematical to provide a visual image of gas dispersion in a given area. A variation of the Gaussian model will be demonstrated as applied to a gas plume in Nigeria.

32. Georgetown Project Internship  
Jamie Hodges, Psychology Department  
Sponsor: Dr. Bryan Neighbors

Ms. Hodges served as a student intern at the Georgetown Project as her Psychology capstone project. This organization is designed around the 40 developmental assets originally put forth by the Search Institute in 1990. Georgetown Project's main focus is to help under privileged, abused, and neglected youth in the Georgetown community. This goal has been achieved by the creation of multiple programs throughout Georgetown. Ms. Hodges observed four of these programs, each of which helps a different section of Georgetown's youth: Bridges to Growth (toddler-4yrs old), Kid City (kindergarten-fifth grade), A.S.A.P (middle school), and The N.E.S.T. (high school). Although Georgetown Project is not specifically a psychology based program, their work within the community and with children leads them to observe and put to practice countless psychological theories.

33. The Efficacy of Access to Water  
Kynan Murtagh, Economics and Business Department  
Sponsor: Dr. Dirk Early

Clean water is often taken for granted in developed countries, but in developing countries it can be, and often is, the difference between life and death. Sanitation can be achieved by many means, some as routine as boiling water before ingesting it, while complex methods such as water treatment plants and desalination are more the norm in Western countries. However, the bottom line is that clean water is attained. In this study, Mr. Murtagh proposes to examine the data on whether or not clean water, both in itself and in relation to agricultural production, affects the health of individuals. By using as many countries as possible, he hopes to obtain relevant and empirically sound data. Additionally, by including

variables such as access to any type of water, not just sanitary water, and a way of measuring corruption he can hopefully isolate which factors affect people most. Through this analysis, Mr. Murtagh will provide a discrete link and further reinforce the connection between access to sanitary water and good nutritive health amongst various populations.

34. High School and College Completion of Second Generation Americans  
Van Pham, Economics and Business Department  
Sponsor: Dr. Dirk Early

The main goal of this study is to use logistic regression to predict the probabilities of a second generation American students graduating from high school and college. The study uses data from the surveys of the Children of Immigrants of Longitudinal Study (CILS). In order to estimate high school and college completion of the students, the study uses sociocultural and parental resources as explanatory variables in estimating the conditional probabilities of graduation from high school and college. The results indicate that there is little variation in the probability of high school's graduation. The two most important factors explaining the probability of graduating from college are high parental expectations and high parental education.

35. St. Justin and the Graeco-Roman World: An Analysis of Justin's Presentation of Christianity as the Fulfillment of Graeco-Roman Tradition  
Donald Frye, Classics Program  
Sponsor: Dr. Hal Haskell

In the second century AD, Christianity faced attacks from the Graeco-Roman world because the Romans viewed the Christian religion as a threat to philosophical traditions which formed the foundation of their society. Our evidence suggests that most early Christians did not respond to or answer specific charges, but St. Justin the Martyr, the first Christian philosopher, openly dealt with these accusations throughout his writings. Mr. Frye will focus on how Justin presents Christianity as a way of life within which is the fulfillment of Graeco-Roman traditions. For example, Justin attempts to argue throughout his work that specific philosophers who rejected traditional paganism were actually Christians who lived before Christ because they lived by reason (I Apology 46). Conclusions from this analysis will be placed within the broader context of Graeco-Roman Christians' perceptions of their relation to the traditions of the Graeco-Roman world.

36. The Self-Castration of Attis in Catullus 63: An Analogy for Roman Anxiety During the Late Republic  
Jenna Gaska, Classics Program  
Sponsor: Dr. Hal Haskell

The poem Catullus 63 describes the self-castration of a Greek youth named Attis in supposed worship of the goddess Cybele. The cult of Cybele had a long and colorful history; beginning with its arrival in Rome in 204 B.C. Writing during the period of the late Republic, Catullus utilizes his audience's familiarity with this cult to provide the context for a sexually violent act that had deep-rooted implications about one's identity and status in both Roman and Greek society. As a young Greek youth, Attis had enjoyed a glorified sexual role as the passive partner amongst the older, elite males of his society. Yet as he prepares to become a full-fledged male of the upper classes, he is expected to step into a different, societal demanded role as the active partner. The madness that causes him to castrate himself is driven by an underlying anxiety concerning the uncertainty of his future. Like Attis, the Romans of the late Republic found themselves on the cusp of a transition both unpredictable and alien to their previous experiences. As the stability of the state and

its political traditions crumbled, elite Romans were faced with an identity crisis of their own. Attis' transition into adulthood thus evokes the madness created by the anxiety of change, a madness only compounded by desperate actions, the madness of the late Republic.

37. *Antigone Re-Crystallized: Ancient Myth in Modern Times*  
Georgia LoSchiavo, Classics Program  
Sponsor: Dr. Pam Haskell

Ms. LoSchiavo has found interesting material in the crystallization of myths, as discussed by Walter Burkert. During studio art courses, along with a personal study of graphic art, she has identified that the graphic novel was an art form well-suited to re-crystallization, particularly for ancient plays that now, rarely performed, have lost their visual impact. The *Antigone* presented itself as an especially interesting play from which to approach an experiment, due to its range of Greek cultural mores that are challenging to translate into concepts accessible to a modern audience. Ms. LoSchiavo will be adapting the play into a 23 page comic, translating key scenes herself and researching scholarship for the overall meaning. She will consider the process of re-crystallization and the process of visual translation of Greek cultural values into a current medium and for a modern audience. She will present three pages: *Antigone mourning Polynices*, *Haemon's initial praise of Creon*, and *Antigone and Haemon in the bridal chamber/tomb*. For each, Ms. LoSchiavo will briefly discuss scholarship on the overarching theme of the scene, and her choices in how to interpret those themes within the medium to bring forth a story that is accurate to the original, while still appealing to a modern audience. For example, while a modern audience could simply interpret Haemon as a coward for deferring to his father, an exploration of the culture behind his actions renders him a much more complicated and interesting character (H. Foley, *Female Acts in Greek Tragedy*).

38. *Centered Absence: Louise Erdrich's Identity Creation in Love Medicine and The Plague of Doves*  
Hayley Hervieux, English Department  
Sponsor: Dr. Carina Evans

Ms. Hervieux capstone research project was exploring the works of Louise Erdrich as a modern Native American author. As a prolific writer, Erdrich lends plenty of material to the process of comparison. Ms. Hervieux chose to use *The Plague of Doves* in conjunction with *Love Medicine* because she found that the two works, although published twenty-four years apart, contained very similar themes, styles and topics. Though there is plenty of scholarship on Erdrich's earlier works, there was room for Ms. Hervieux to maneuver when exploring Erdrich's later works, giving the fertile ground for research and ideas. In producing research, methods were used common to Ms. Hervieux's field of study. The two novels were the primary sources. In addition, she utilized scholarship on Native American history and religions, Native American literature as a genre, and criticism specifically covering Erdrich's work. Through exploration, Ms. Hervieux tried always to discover and provide a balanced view of Erdrich works and the purpose informing them. Ms. Hervieux' goal was to research and develop some major themes within Erdrich works: the structures of hybridity and identity, as defined by religion, family, and societal structures. Through writing, Erdrich creates her own identity using these structures; performing important generative work through her blending and meshing as well as through the holes and gaps she leaves in her texts for readers to define. Erdrich's unique style is both a formic example of this blending as well as a physical and conceptual construction through which her multifaceted world resonates.

39. Recreating Active Consent in American Citizenship  
Jennifer Mozingo, Political Science Department  
Sponsor: Dr. Timothy O'Neill

This piece intends to identify and critically examine a framing portrait of American citizenship by creating an imminent critique of US Constitutional law, the Federalist Papers which promoted its ratification, and other documents primary to its founding. Through immanent critique, Ms. Mozingo will hold this early vision of citizenship up to its democratic ideal in order to assess the degree to which the United States has fulfilled its own prophecy. This work follows in the path of Hegel's immanent critique of German citizenship and Constitutional law with Adorno and Horkheimer as stylistic guides. To a certain extent this is a project of thinking in transcendence of time and social contexts which are liable to change. At the same time, it seeks to (re)assert practical, radical space for consent in the American public sphere.

40. Publishing Dissent: Agency and Activism in the "Lowell Offering"  
Susan Garrard, History Department  
Sponsor: Dr. Melissa Byrnes

Published from 1840 to 1845, the *Lowell Offering* was the primary literary magazine of Female Operatives of Lowell Mill. Though Lowell Mill was advertised as an industrial utopia where young women could earn an above average wage in "respectable" boarding and work environments, the actual experiences of the women included overly strenuous hours and a strict behavioral code set in place by the authority of the male mill magnates. More importantly, the women were effectively barred from large scale collectivization efforts, and the magazine was frequently censored against overtly critical language against the mill's practices. Ms. Garrard will argue that the women's contributions to the Offering created an abstract space of literary activism that, through its utilization of "acceptable" narrative conventions like poesies and poetry, conveyed subtle critiques which would have normally been repressed by mill authorities. This language of activism dually functioned as an alternative to more dynamic forms of activism like strikes and picketing, as well as created sympathy and understanding between Lowell operatives and the primarily middle and upper class female readership. Ms. Garrard concludes that the *Lowell Offering* represents a unique historical moment where 19th century feminist and industrial issues converge in a literary publication. The existence of the Offering's literary activism speaks to the growing presence of feminist voices in industrial America, and the ability of language and writing to establish communities and enact reform even when more blatant forms of activism are stifled.

41. Passing the Raj's Torch: The Indianization of the British Indian Army  
Christopher Paulos, History Department  
Sponsor: Dr. Melissa Byrnes

The historical treatment of the Indian Army during the period of British rule in the Indian subcontinent has been characterized by an emphasis on the racist policies of the British government in regards to the recruitment and organization of this most vital element of the colonial regime's coercive power. The matter of Indianization, the process of commissioned officer rank being bestowed for the first time in appreciable numbers on Indians themselves, has similarly been viewed by many scholars as a racial matter. Subsequently the political underpinnings of Indianization have received only secondary consideration. This is an understanding of the motivations behind Indianization on the part of British officialdom, both in London and in Delhi. By consulting minutes of the British cabinet during the pivotal decision-making years and the memoirs of an Indian officer who spent the

formative years of his career serving the British Raj, this research was able to form a multicausal explanation for the British government's meandering policy of Indianization. Rather than being formed entirely by endogenous prejudices or characterized by inattention to events and opinions forming in India, this policy was both evolutionary in its implementation and fraught by factional disputes within the British establishment. By reexamining Indianization as a political process, this research has contributed in a small way to understanding how national militaries are shaped through the intersection of competing interest groups. The outcome has had considerable and often deleterious influence on the stability of many countries.

42. Assessing the Local Food Landscape in Central Texas: Access, Obstacles, and Consumer Motivations

Kate Castles, Whitney Moore, Molly O'Hara, Ben Parafina, Environmental Studies Program  
Sponsor: Dr. Joshua Long

The study focuses on the literature surrounding access and consumer motivations within the alternative food movement, specifically farmers' markets. Through the review of the literature, they concluded that more information concerning food access, consumer motivations, and reliable price comparisons could be gathered through detailed qualitative research. Literature on the alternative food movement and farmers' markets was focused on two distinct themes: (1) location and access of food markets, and (2) the way in which food itself played a part in community relations and political action. Building upon recently completed primary research on the Central Texas food shed, the research aims to extend and nuance this discourse through critical understandings of farmers' markets and their impacts on communities. The research looks to explore food access, obstacles, and motivations, both within the literature as well as in the field.

43. Apples to Apples: A Qualitative Price Comparison Study of Central Texas Food Markets  
Jillian Curran, Harrison Glaser, Ellen Hoyer, Lisa Morse, Environmental Studies Program  
Sponsor: Dr. Joshua Long

The number of United States farmers' markets has increased rapidly in the past decade, and an escalating interest in locally produced food has paralleled this trend. Several benefits have been associated with the increase in farmers' markets, such as improved ecological sustainability, higher food quality, and improved community relations. Unfortunately, it has also created concerns in the realms of access and inequality. The study attempts to address how these issues are actualized in Central Texas by conducting fieldwork at local farmers' markets in Austin, Cedar Park, and Georgetown. In each study area, they will perform a qualitative price analysis, comparing farmers' market items with products at nearby conventional supermarkets and natural grocers. Previous price comparison studies focused on produce defined by variety only; however, increasing consumer awareness of and preference for non-conventional food (e.g. organic, free-range, fair trade, etc.) begs a much deeper qualitative price analysis. As a result, they seek to explore differences in quality, production methods, and labeling. To compliment the study, they will administer an in-depth survey with farmers' market patrons that examines their experiences and preferences of shopping at such markets—another feature that is new to price comparison studies. The results of the study will show whether there is a significant price difference between items at different food markets, whereas the survey will provide a better understanding of the perceived advantages of shopping at farmers' markets and/or traditional grocers.

#### 44. Out of Oil

Colin Smith, Economics and Business Department

Sponsor: Dr. Emily Northrop

As the world's oil supply becomes smaller and the global population and energy needs grow, we are faced with the unnerving thought of how, or even if, society will sustain its enormous need for the resource that fuels practically everything in our lives. Before the decline in oil becomes too steep, we must consider how our lives will be affected by the lack of oil, and the substitutes that are available to us. Specifically, this study looks at the peak oil phenomenon in regard to the changes that will occur in the transportation industries and the possible timeline of when visible adaptations will take place. This study intends to use research from several geologists and economists to predict how soon and how drastically our world will change.

#### 45. Helping the Poor Help Themselves: An Analysis of Microfinance's Effectiveness for Poverty Alleviation

Kari Shearer, Economics and Business Department

Sponsor: Dr. Emily Northrop

Microfinance is this millennium's newest innovation for poverty alleviation. Microfinance is the lending of small loans with lower interest rates than commercial banks to people who would not be able to get the loans otherwise due to their income levels. This paper discusses whether or not microfinance is a feasible and effective solution for the alleviation of poverty within the United States as well as other countries. An analysis of how effective microfinance has been in other countries, especially focusing on India, will be applied to see if it would be effective within the United States for poverty reduction and, if possible, producing economic growth. The findings show that microfinance is a feasible and effective way to help people out of poverty within the United States.

#### 46. The Misunderstood Topsoil of our Economy: Entrepreneurs

Kavita Singh, Economics and Business Department

Sponsor: Dr. Emily Northrop

The Introductory Economics classes list off the factors of production as land, labor and capital. Many teachers and textbooks often forget an important fourth factor: the mysterious figure of the entrepreneur. What is an entrepreneur? They are the small business owners, the start-ups, the little guys in our large system. They take many forms from your local grocer to the ten-year-old kid serving lemonade on a street corner. What role does the entrepreneur play in our economy? Opinions have differed over the years as to their impact. This project will explore who exactly these people are and how economic theory from a variety of ideological groups has treated them, especially in works surrounding Schumpeter and in the work of the Austrians, who have arguably contributed the most quantitatively if not qualitatively to this subject. It is argued in many of these sources that metaphorically speaking, entrepreneurs serve as the topsoil of the farmland of our economy. Understanding paradigms, including our dominant neo-liberal paradigm, will help in this exercise. Understanding the past developments in the history of economic thought will prove essential to understanding what the role economists and everyday people will have for entrepreneurs in the future.

47. Preventing Predatory Lending: Is Dodd-Frank the Way?  
Jenna Mossbarger, Economics and Business Department  
Sponsor: Dr. Emily Northrop

Predatory lending in the United States represents a major flaw of the subprime housing market. "Broadly stated, predatory loans are characterized by a 'mismatch...between the borrower's financial circumstances, needs, and objectives and the loan that the professional lender offers" (Lehe 2010, 2056). Prior to the crisis in 2008, subprime lending flourished (particularly in the '90s) due to deregulation, as well as loose and non-uniform policies throughout the U.S nation. However, when the housing bubble collapsed, predatory lending resulted in extremely high foreclosure and default rates for subprime loans. The repercussions of the housing bubble exist to this day in the United States economy, and action has been taken to prevent a similar occurrence in the future. In particular, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), signed by President Barack Obama on July 21, 2010, attempts to address the exploitation of consumers dealing with financial services. This paper seeks to determine whether or not the Dodd-Frank Act sufficiently addresses the problems behind predatory lending without hindering the subprime housing market. By focusing on the historical development of the subprime market, the resultant crash, and the recent attempts to create more stringent regulations and safeguards, in financial services, the Dodd-Frank Act's success (or lack there of) will be evaluated.

48. International Labor Mobility  
Cameron Fanning, Economics and Business Department  
Sponsor: Dr. Emily Northrop

Government policy concerning border control and its economic implications is an ongoing and heated debate that deserves attention, especially considering current economic struggles after the 2008 financial crisis. Essential elements of this government policy include the rules that govern international labor mobility. Various theories argue for and against the liberalization of these rules for economic and social reasons. These theories range from examination of threats to local economies by cheaper foreign labor to proponents of the economic benefits foreign labor can provide when migrant workers return to their home economies. This presentation will examine both sides of the debate and provide a recommendation for government policy, specifically in the United States, concerning the liberalization of rules governing international labor mobility.

49. Impact of Illegal Immigrants on the Economy of the Southeastern United States  
Joshua Martin, Economic and Business Department  
Sponsor: Dr. Emily Northrop

Mr. Martin will cover the economic impact of illegal immigrants on the southeastern United States and what has happened to the immigrants now that tough anti-immigrants laws have been passed. He will also explore what state governments have done to respond to the mass exit of the illegal immigrants and all the jobs left empty in their absence.

50. A. Q. Khan and the Ethics of Nuclear Proliferation  
Andrew Ivey, Political Science Department  
Sponsor: Dr. Timothy O'Neill

In 2003 a nuclear black market which spanned three continents and included such rogue states as Iran, Libya, and North Korea, was discovered and connected to the father of Pakistan's own nuclear bomb, scientist A. Q. Khan. While Khan has since been placed

under permanent house arrest, he has denied that he sold nuclear technology for his own profit, but rather for the security needs of Pakistan. By invoking this greater good in the form of “security needs” Khan has allowed himself to be judged according to utilitarian principles. This presentation will examine Khan’s ethics in terms of utilitarianism along with framing these ethics in the ongoing discussion of proliferation.

51. Mexico's War on Drug Cartels: A Glimpse into Nuevo Laredo’s Media “Self-Censorship”  
Miguel Caballero, Political Science Department  
Sponsor: Dr. Timothy O'Neill

Felipe Calderon declared war on drug cartels in the beginning of his administration on December 2006. Calderon’s decision to wage war on drug cartels has sparked a wave of violence across Mexico that has left approximately 50,000 dead. Today, Mexican citizens have begun to question if there could’ve been an alternate method besides the current war on drug cartels, in addressing the encompassing issue of corruption, and drug trafficking. Calderon believes his decision to wage war on the drug cartels is justified because he believes it is necessary to restore peace and stability throughout. Therefore, is President Calderon justified in his tactics in suppressing drug cartels in Mr. Caballero’s hometown Nuevo Laredo, according to utilitarianism? Using Nuevo Laredo, Tamaulipas, as a case study, Mr. Caballero will analyze whether Calderon’s war on drug cartels is ultimately having the effect that he wanted. Using Ernest R. May’s and Richard E. Neustadt’s Thinking in Time method of historical and policy analysis will be a vital resource in establishing the framework (social and political conditions) that led to Felipe Calderon's decision to declare war on drug cartels. In addition, Mr. Caballero will conduct interviews of reporters in a major newspaper chain which will help in providing a firsthand account of their experiences in an area that has adopted self-censorship in their public coverage of the war on drug cartels. Nuevo Laredo while only a microcosm in the war on drug cartels, will provide a glimpse of the effects this war is having on Mexican citizens.

52. Ethical Dilemmas in Operation Fast and Furious  
Gabrielle Eggleston, Political Science Department  
Sponsor: Dr. Timothy O'Neill

Why was Operation Fast and Furious wrong? Beyond the obvious fact that the life of United States federal agent Brian Terry was tragically lost, Ms. Eggleston's research intends to prove how and why the Department of Justice and Attorney General Eric Holder violated ethical standards in the tactics used in the operation as well as the deceit and cover-up after the inception of legislative investigations. This is one of the first analytical pieces on Operation Fast and Furious due to the case’s recent nature. It seeks to show that both instances within the Department of Justice’s bureaucratic blunder violate the Kantian principle of duty (deontological ethics) and Bentham’s argument for utilitarianism (ethics of consequentialism), thereby making it an inherently unethical undertaking. The research takes the approach of an analysis of political culture. It consults views from both theorists as well as modern viewpoints of ethics in public office and opinions by the American public on moral principles. In the end, this paper seeks to provide the reader with insight as to how politicians can make ethical but also effective decisions in the scope of undercover operations.

53. Demoralized: How Culture Has Created a Market for Sex Slavery  
Rebekah Gomez, Political Science Department  
Sponsor: Dr. Timothy O'Neill

Does the sex obsession of our modern day culture fundamentally objectify women? If so, is our culture's fundamental objectification of women responsible for the prevalence of the sex slave industry here and abroad? Sexually perverted images are readily available in the world that we live in. Women and their bodies are increasingly objectified by the media; a media which remains fueled by the degrading and demoralizing demands of popular culture. As a result of our lowering standards of purity and honor regarding women and sex pornography and prostitution have become major industries. In the acceptance and prevalence of pornography as well as the legalization of many forms of prostitution we've created a perfect breeding ground for the horrors of modern day slavery. Not only has the objectification of women through sexual perversion become more accepted, but globalization has caused this mindset to spread both here and abroad. Now, our world is faced with an epidemic, the epidemic of the human sex slave industry.

- "The sale of women, we're not talking pornography, and we're not even talking prostitution, we're talking about just the sale of women, constitutes the third largest industry in the world."  
The CIA
- "Human trafficking is the fastest growing criminal industry in the world."  
United States Department of Health and Human Services

54. Super PACs: Triumph or Defeat for the First Amendment?  
Justin Williamson, Political Science Department  
Sponsor: Dr. Timothy O'Neill

The United States Supreme Court ruled, in a 5-4 decision, in *Citizens United v. Federal Election Commission*, that the federal government could not prohibit unions and corporations from making political donations. In *SpeechNow v. Federal Election Commission*, the Court ruled that, so long as the PAC does not coordinate directly with a political campaign or candidate, they are allowed to accept contributions in excess of \$5,000 from an individual. Assuming they are operated correctly, and within Federal Election Commission guidelines, Super PACs can raise unlimited sums from individuals, corporations, unions and other associations and groups. Are Super PACs, like Karl Rove's American Crossroads, who do not have to abide by certain campaign finance laws, like McCain-Feingold, protected under the First Amendment?

## CREATIVE WORKS AND EXHIBITIONS IN THE JIM AND PAT WALZEL LOBBY



mixed media  
2011  
48"x65"

55. *Untitled I*  
Morgan Bailey, Art and Art History Department  
Sponsor: Ms. Victoria Star Varner

Inspired by biological curiosity and the narrative power of art, Ms. Bailey strives to integrate scientific and artistic endeavors. Both share the investigative natures of observation and evaluation. She applies these as metaphors for personal, global and communal perspectives of disease and its spread. *Untitled I* is a large-scale mixed-media artwork that uses tracings of human scars and veins as its visual basis. Ms. Bailey incorporates several non-traditional materials, including glass, latex, string and glassine to create a tension among pictorial elements intended to evoke a sense of discomfort similar to the relationship between the body and disease, health and sickness.



oil on canvas  
64" x 36"  
2011

56. *Bite*  
Jessica Cox, Art and Art History Department  
Sponsor: Ms. Victoria Star Varner

*Bite* is an oil painting on canvas that presents a decaying steel animal trap. By infusing an object associated with capture, death, and cruelty with the culturally coded color for innocence and femininity – pink – Ms. Cox makes the object gendered through color. In addition, she emphasizes the threatening power of the trap by making it quite large. The rusting surfaces are analogous to human skin and mortality, which further anthropomorphize the subject. In this way, Ms. Cox investigates the interconnectivity of meaning, environment, and audience.



oil on canvas  
64" x 36"  
2011

57. *The Product*  
Kim Dembrosky, Art and Art History Department  
Sponsor: Ms. Victoria Star Varner

*The Product* combines qualities of both painting and sculpture in an effort to convey the nature of the psyche. Working intuitively, Ms. Dembrosky chose a subject associated with non-academic art: a winged cat sitting atop a psychedelic flower, which she painted on a four by five foot board. She then cut the board into squares, stacked the squares, and chained them together. Ms. Dembrosky created this piece to express the ways in which our inner desires, child-like imagination, and creative energies are often suppressed by the institutionalization of art. Both the processes of making "The Product," and its resultant form, function as a critique of museum and academic culture through a satiric repackaging.

58. Blurred Perception  
Jenna Foster, Art and Art History Department  
Sponsor: Ms. Victoria Star Varner



oil on panel  
28" x 22"  
2012

*Blurred Perception* is a reflection upon the significance of, and relationship between, pharmaceutical and unsanctioned drugs in contemporary western culture. Both are deeply intertwined with not only the way we understand and construct our bodies, but the attempts we make to control, or free, our inner psyches. Inspired by the erratic, disparate relationship between our bodies and what we put into them to induce a desired effect, the painting is organized in a kaleidoscopic manner and comprised of a chaotic arrangement of polymorphous forms within indeterminable space. The painting offers no authoritative, absolutist perspective, but merely asks the viewer to reflect upon the decidedly ambiguous subject matter and whatever personal/political implications might arise in result.

59. Teethed to The Arm  
Noel Kalmus, Art and Art History Department  
Sponsor: Ms. Victoria Star Varner



gouache on panel  
7" x 5.5"  
2012

*Teethed to The Arm* is a small egg tempera painting based on a drawing from Ms. Kalmus' sketchbook. She is drawn to the delicate appearance of the medium and the juxtaposition of her contemporary drawing style with the classic tradition of tempera painting. The curiously calm expression of the subject complicates the violent physical predicament she finds herself in, echoing the surreal ambiguity of unsettling moments in our own lives. Through this and other works, Ms. Kalmus expands upon portraiture by using grotesque elements to create a weird miniature world.

60. Lure  
Julia Page, Art and Art History Department  
Ms. Victoria Star Varner



fishing lures on canvas  
48" x 48"  
2011

*Lure* is a composition of swirling masses of shimmering plastic fishing lures affixed to a canvas. By repurposing fishing tackle in the context of painting, Ms. Page aestheticizes functional objects and seeks a new interpretation of an object associated with male sport. By transforming the Day-Glo minnows into an undulating swarm by following traditional design principles of rhythm and harmony, she hopes to create unexpected beauty.

61. Red Nest  
Rachel Sellars, Art and Art History Department  
Ms. Victoria Star Varner



oil on canvas  
14" x 14"  
2012

For the small oil painting *Red Nest*, Ms. Sellars composed the still life first by twisting fabric into a circular shape until it seemed as though something should be held or cradled within. By intentionally leaving it empty, she set up a paradox exploring the contrast between our expectations or longings and what we actually see. Ms. Sellars' is interested in what it means to create a painting that is concurrently filled and empty. Through this painting, she considers and shares with others an interpretation of emptiness and how we "pre-fill" things with our expectations.

## CREATIVE WORKS AND EXHIBITIONS IN THE BISHOPS LOUNGE

62. Southwestern University Trombone Quartet  
Michael Martinez, Ben Bracher, Allie Lingren, David Vaden, Music Department  
Sponsor: Dr. Eileen Meyer Russell

As four trombonists, some of the joys they experience are getting together, playing their instruments, and having fun making music. Unfortunately, much of this is spent out of the public eye and in a practice room with the professor. In addition to this, there are people with a wide palette of musical tastes, eager to listen to something not common and easily accessible. They will offer a new glimpse into the world of trombone quartet for those eager to explore new types of music. In February 2012, the Trombone Quartet performed in the Music Showcase at the Texas Music Educators Association Conference, earned through audition by Frank Coachman. The music that will be performed ranges from classical, choral music to jazz standards to calming waltzes.

63. Civic Engagement in the Information Age  
Stephen Brown, Huy Nguyen, Ethan Banner, Mathematics and Computer Science  
Department  
Sponsor: Dr. Barbara Owens

The Friends of Georgetown Parks and Recreation (Park Pals) is a not-for-profit volunteer group that attempts to offer additional support for the programs put on by the Georgetown Parks and Recreation Department. The group requested computing help for organizing their information in a more efficient manner. The capstone class has been tasked with imagining and developing a system that allows them to conveniently organize and access their files and records to optimize the productivity of the group. The idea began as a site similar to Southwestern's Moodle Learning Management System, where members could login and access desired information regarding Park Pals, such as upcoming events, minutes, news, and photos. This basis of an idea developed to include different levels of access privileges, member polling, report generation, online forms, and other functionalities. Through an exhibition presentation, they hope to take members of the Southwestern community through the creative problem solving process of software engineering - from systems analysis and requirements gathering through a live demonstration of the product that they are delivering to Park Pals. The presentation will also include an explanation of the underlying open-source technologies they leveraged to implement solution, with an emphasis on cloud-based web applications.

64. Programming Poetry: The Adaptation of Art and Art of Adaptation  
Addison Dean, Stephen Brown, Mathematics and Computer Science Department  
Sponsor: Dr. Suzanne Buchele

Our project seeks to explore the role of emergent technologies in analyzing how people think of 'poetic' language. The intention is to accomplish this in two phases: First, the construction of an installation on campus based on the concept of magnetic fridge poetry. Replicate this classic activity in the digital realm. A user will stand in front of the display, and given a pseudo-random selection of dictionary words, be prompted to create a unique piece of poetry. In keeping with the tradition of the great fridge poets, this action will be accomplished using motion-control hardware, rather than a keyboard and mouse. Second, collect and make use of the poems created with the program over time. By tracking the

words most often chosen by users, they can then include those words more frequently as part of the initial random set. This allows the program to become more usable and fun over time, while giving valuable insight into what language users consider 'poetic'. Similarly, they hope to compare user-inputted poems to those used to create the dictionary, with the intent of finding similarities.

65. Piezoelectric Energy Harvester  
Karl Kleinsasser, Physics Department  
Sponsor: Dr. Steven Alexander

Ms. Kleinsasser has created a floor-pad that acts as a passive energy harvester, collecting the force of people's footsteps and converting it into electrical energy. In order to do this, this project makes use of piezoelectric elements, which are electrical components that can convert physical stress into electricity. The goal of this project is to create a device that can produce very clean energy and make use of a largely untapped resource; that is the work that is done every day by the simple act of people walking. A floor-pad such as this could be placed in high traffic areas in order to harvest electricity unobtrusively. This energy could be used to charge small batteries or run low power devices such as LED lights. This floor-pad uses the piezoelectric elements to gather the energy and then regulate it, converting the raw signal produced by foot-steps into an electric signal that can be used to charge low voltage batteries. In this way, this project allows for a completely renewable source of energy to be harvested and then used in a variety of ways. This floor-pad is an attempt to create a proof of concept device that can show the viability of unobtrusively harnessing the power of people's movement in order to create electricity.

66. Southwestern University String Quartet Performance  
Marie Smith, Erin Weber, Katie De La Vega, Emilio Alvarez, Music Department  
Sponsor: Dr. Eileen Russell

Members of the quartet work together to create a piece of music, which is much different than working on a solo piece or being part of an orchestra. This requires a lot of listening and awareness of what other parts are doing. Each instrument is vital to the flow of a piece. Playing a string quartet gives the opportunity to explore many exciting types of music. Every semester the quartet explores music from different musical eras. They play works varying from the light melodic quartets of Mozart to the excitement and passion of 20th century music such as Shostakovich. The best experiences usually involve performing. Members of the quartet are actors. Each of them play a part in the quartet to create a whole story. As a group, they have many amusing conversations about what the pieces they play mean to them. They always try to find ways to convey these ideas to their audience.

## POSTER PRESENTATIONS

67. To Wait or Not to Wait? Relationship Recovery Time and Strategic “Rebounding”  
Lauren David, Martha Simon, Psychology Department  
Sponsor: Dr. Traci Giuliano

Following the dissolution of a romantic relationship, individuals are confronted with the challenging task of recovering emotionally. They conducted a survey of 120 college students (75 women, 44 men, 1 unreported) to assess (a) the amount of time required to recover from a breakup and (b) whether people might strategically engage in “rebound” relationships to speed the recovery process. The results found that women require a recovery period of about half of the length of the relationship, whereas men require a period of about one-fifth of the length of the relationship. With respect to rebound relationships, the results showcase a majority of participants had intentionally started new relationships as a method of recovering from a breakup. Interestingly, there were no gender differences in how often men and women engaged in strategic rebounding, although they differed in their perceptions of the reasons that people use this strategy. The findings suggest that women recover from a breakup more slowly than men do, and that men and women may use recovery strategies differently.

68. You're Hired: How Persuasion On Tactic and Gender Stereotypes Affect Promotions  
Kevin Hutzler, Lindsey Honeycutt, Thomas Bobbitt, Psychology Department  
Sponsor: Dr. Traci Giuliano

Arguing against self-interest is a common persuasion tactic used by politicians to garner more votes because this tactic enhances the politician’s credibility. It is possible that this tactic could be useful for attaining other goals (such as a job promotion). As such, the present study explored the effects of persuasion tactic (i.e., self-praising or praising the opposing candidate) and applicant gender (i.e., male or female) on perceptions of a job candidate’s likelihood of being promoted. Eighty-eight undergraduates (51 women, 36 men, and 1 unreported) at a small, private liberal arts university in central Texas voluntarily completed a questionnaire on the perceptions of job applicants. Contrary to our hypotheses, neither persuasion tactic or applicant gender changed the perceptions of the job candidate’s promotability. Instead the results suggested that praising the opposing candidate enhances perceptions of the passiveness of the candidate as well as increases perceptions of the opposing candidate’s competence. Although appropriate in the political arena (Combs & Keller, 2010), the unintended negative consequences that arguing against self-interest (i.e., praising the opposing candidate in a job interview) have suggest that arguing against self-interest is not an effective persuasion tactic and that other persuasion tactics (e.g. ingratiation or self-promotion) should be pursued in a interview setting.

69. Exploring Perceptions of Saying “I Love You” in Romantic Relationships  
Brooke Blomquist, Sarah Chatfield, Psychology Department  
Sponsor: Dr. Traci Giuliano

The goal of the research was to explore gender differences in perceptions of the timing and meaning of saying “I love you” to a romantic partner. One hundred and twenty college students (44 men, 75 women, and 1 unreported) completed a survey assessing their attitudes about romantic relationships. As predicted, men were more likely than were women to say “I love you” in order to have sex with their partners. By contrast, women were more likely than were men to say “I love you” because they could not stop themselves. Both men and women agreed that saying “I love you” should come after at least three months of being

in a relationship. The results suggest that men and women have different reasons for saying "I love you" for the first time and that these words seem more sincere after longer amounts of time in a relationship.

70. Variations in Phenolic Levels, Anthocyanin Composition, and Antioxidant Properties Among Eight Purple Basil (*Ocimum Basilicum* L.) Cultivars  
Patrick Flanigan, Chemistry and Biochemistry Department  
Sponsor: Dr. Emily Niemeyer

Plants are known to produce phenolic compounds, and these secondary metabolites have antioxidant properties that are associated with potential human health benefits. Anthocyanins are a subclass of phenolic flavonoids that are acid-stabilized and responsible for blue/red pigmentation in plants. In the current study, Ms. Flanigan determines differences in the type and amount of anthocyanins and phenolics present in eight purple basil (*Ocimum basilicum* L.) cultivars. For all basil samples, total anthocyanin and phenolic levels were quantified using spectrophotometric methods. In addition, individual basil anthocyanins and phenolic acids were analyzed by high performance liquid chromatography, and antioxidant capacities were determined using the ferric ion reducing antioxidant power (FRAP) assay. Our results show that cultivar does affect anthocyanin levels in basil, and that a strong correlation exists between phenolic composition and antioxidant capacity. This presentation will examine the impact of cultivar on total and individual anthocyanin concentrations and phenolic acid levels, and will discuss how these compounds contribute to measured antioxidant capacities in basil.

71. Post-Translational Processing of MucA, MucA' and MucB  
Morgan Bailey, Kim Pierson, Biology Department  
Sponsor: Dr. Martin Gonzalez

Ultra-violet radiation and chemical mutagenesis in *Escherichia coli* requires the activity of an error-prone DNA polymerase expressed from the *umuDC* operon. Traditionally, this process has been shown to occur through the transcription on the *umuD* and *umuC* genes; yet, research has also demonstrated that this mutagenic response may occur through an alternate pathway involving the transcription of the plasmid-borne functional homologues *mucA* and *mucB*. The *umuDC*-mediated mutagenic process is tightly regulated at the level of transcription and via selective protein degradation. Due to the ease of transmission for the plasmid-borne *mucAB* operon and the lack of information concerning the post-translational stability of the Muc proteins, our research focuses specifically on determining the role of selective protein degradation of MucA (MucA') and MucB. Through western blot analysis they determined that, unlike what has been shown for *UmuDC*-mediated mutagenesis, the ClpXP protease does not factor significantly in regulating MucAB-mediated mutagenesis. However, Ms. Bailey and Ms. Pierson have identified the Lon protease to be the primary regulator of post-translational processing of the MucAB proteins, indication that the mutagenic response functioning through the *mucAB* operon bears similarity to its *umuDC* counterpart.

72. Protein Kinase B/Akt Signaling Pathway May Be Improperly Regulated in Kirsten Sarcoma Virus-Transformed Murine Embryonic fibroblasts  
Carolina Mendoza, Chemistry and Biochemistry Department  
Sponsor: Dr. Kerry Bruns

The Akt pathway of signal transduction in Kirsten virus-transformed murine embryonic fibroblasts (KBalb) was studied. Using Western blot analysis, phosphoproteins involved in the pathway were identified in different cell fractions and compared to the levels detected in

the parental cell line (Balb 3T3). In KBal b cells, Akt appeared to be in a more highly phosphorylated state than Balb 3T3 cells. In addition, other proteins involved in the pathway (c-raf and Phosphoinositide-Dependent Protein Kinase 1) appeared to be more highly phosphorylated and activated in the transformed cells. In an unexpected result, PTEN, a phosphatase involved in suppressing the Akt pathway, was found to be under phosphorylated and apparently more active in the transformed cells. Ms. Mendoza is currently studying the expression of the PTEN gene in the two cell lines. Activation of proteins downstream from Akt in this pathway may be due to an increase activity of mTOR in KBal b cells relative to Balb 3T3. This idea is supported by the increased phosphorylation of Akt at Serine 473, a site phosphorylated by mTOR independently of PDK1. Other intracellular targets (substrates) of mTOR will be studied to test this idea.

#### 73. Construction of a Solar Concentrator

Eric Godat, Physics Department

Sponsor: Dr. Steven Alexander

Solar and wind power are fundamentally inconsistent. Power outputs rely heavily on weather patterns and so cannot be a consistent source of electricity to the power grid. Companies that use these renewable energy sources must rely on backup generators or other forms of electricity to stabilize outputs during inclement weather cycles. In this project Mr. Godat examines a device that is capable of converting sunlight into high temperature heat, storing this energy in a thermal battery for long periods of time and releasing it efficiently in such a way that electricity can be produced. This combination of solar concentrator and thermal battery is inexpensive, environmentally benign and should provide a reliable source of clean renewable energy.

#### 74. Food Access: A Spatial Analysis of Food Deserts and Farmers' Markets

Lisa Morse, Environmental Studies Program

Sponsor: Mr. Anwar Sounny-Slitine

Recent studies have drawn attention to issues of food security in regards to areas that are considered "food deserts." While there are multiple definitions for food deserts, this study will apply the definition used by the Healthy Food Financing Initiative, which defines food deserts to be low-income census tracts where a significant portion of the residents have low access to supermarkets or large grocery stores. Low access is defined as being located more than 1 mile away from a supermarket in urban areas and more than ten miles away from a supermarket in rural areas. Researchers from the United States Department of Agriculture (USDA) have developed useful maps and data detailing areas that are defined as food deserts. For this study, a spatial analysis will be conducted to compare how access to farmers' markets varies in areas defined as food deserts and non-food deserts. Since farmers' markets have been gaining much popularity due to the increased demand for fresh and local foods, it is advantageous to see where these markets are located in relation to the actual need for healthy foods in the communities. Social and economic demographic data will also be evaluated to provide a deeper analysis of the inequalities surrounding food access to both supermarkets and farmers' markets.

#### 75. Effects of Gender and Self-Presentation on Perceptions of Student-Professor Interactions

Sarah Johnson, Psychology Department

Sponsor: Dr. Traci Giuliano

The purpose of the present study was to explore the effects of student gender and type of self-presentation strategy used in participants' reactions to a student-professor interaction scenario. An experiment with 113 participants (58 women, 54 men, one unreported) at a

predominantly white small liberal arts university in central Texas. As part of a between-subjects experimental design, participants read one of four possible scenarios and indicated their perceptions of the situation and of the student described as well as indicating whether or not they would allow the student to take the class. Ms. Johnson hypothesized that participants' perceptions would be most favorable toward female students who used ingratiation and male students who used self-promotion. Contrary to the hypothesis, there was no interaction between student gender and the type of self-presentation strategy. However, there was a three-way interaction among student gender, participant gender, and the type of strategy, such that male participants expect male students to use self-promotion in their interactions with professors, but do not require female students to act in a specific manner. In contrast, women participants did not have any expectations in self-presentation strategy for either gender. The results of the present study imply that gender role expectations, though still influential, are less prevalent about women in academic situations as they once were.

76. Parental Openness as a Predictor of Attitudes toward Abortion and Public Sex  
Sarah Johnson, Psychology Department  
Sponsor: Dr. Traci Giuliano

The purpose of the present study was to explore the relationship between parental openness and attitudes toward abortion, as well as the relationship between parental openness and attitudes toward public sex. Specifically, Ms. Johnson hypothesized that there would be a positive relationship between parental openness and attitudes toward abortion, and that there would be a negative relationship between parental openness and attitudes toward public sex. To test these relationships, questionnaires were distributed to 163 participants (106 women, 56 men, and one unreported) at a small, predominantly white liberal arts university in central Texas. The participants' ages ranged between 18 and 39, and they were asked questions designed to assess their attitudes toward various aspects of human sexuality. Contrary to the first hypothesis, there was no relationship between parental openness and attitudes toward abortion. Consistent with the second hypothesis, however, the more parental openness participants reported, the less likely they were to be supportive of public sex. These results suggest that there may not be harm in parents educating their children about human sexuality, because greater parental openness predicts more negative attitudes toward public sex, which can be defined as risky sexual behavior.

77. Design and Implementation of a Web-Based Computer System for Friends of Georgetown Parks and Recreation  
Joshua Wolfe, Leonardo Garcia, Mathematics and Computer Science Department  
Sponsor: Dr. Barbara Owens

The Friends of Georgetown Parks and Recreation (Park Pals) is a not-for-profit volunteer group. Park Pals attempts to offer additional support for the programs put on by the Georgetown Parks and Recreation Department. The group requested computing help for organizing their information in a more efficient manner. The capstone class has been tasked with imagining and developing a system to that allows them to conveniently organize and access their files and records. The idea started as a site similar to Southwestern's Moodle where members could login and access desired information regarding Park Pals, such as upcoming events, minutes, news, and photos. This basis of an idea developed to include different levels of access privileges, member polling, report generation, online forms, and other functionalities. With this presentation, they want to demonstrate the creative process of Software Engineering applied to the product they are creating for Park Pals. This process has included meeting with Park Pals members, gathering and revising system requirements based on the members' suggestions, and combing them with their own insights. While

following the development process, they have learned about new technologies available for creating web applications and technical details about the process that they must follow in order to set up a web application.

78. Does The Unmet Need For Contraceptives Have A Relationship With Abortion Rates?  
Emily Pawelek, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Many women all over the world feel as if their families are contributing to the statistics of unmet need for contraceptives. The unmet need of contraceptives refers to the number of women who wish to limit childbearing but do not use any contraceptive device or technique. Unwanted pregnancies resulting from the unmet need often lead to abortions, whether legal or unsafe. Unsafe abortions are usually self-inflicted or not done by a trained professional, often causing death of the woman. Using global data sets from UNdata, a branch of the United Nations Statistics Division, the unmet need for contraceptives and the sum of legal and unsafe abortions will be compared against each other. Once this is completed, there will be evidence whether or not the two statistics correlate with each other and whether that correlation is positive or negative. This data will be mapped graphically on a global scale and presented with information on each country represented in the data.

79. Questioning Accuracy: An Exploration of Historical Maps  
Anne Bransford, History Department  
Sponsor: Mr. Anwar Sounny-Slitine

What makes a map “accurate”? This presentation seeks to contrast concepts of spatial accuracy with cultural perspectives in regards to the best way to represent the world. Ms. Bransford has assembled for comparison a diverse collection of six maps that range in time and in space. They include a 6th century BCE Babylonian Imago Mundi (the oldest known map), a 12th century map of Eurasia made by an Arabian at a Sicilian court, a 13th century T-O map made as part of a psalter, a 15th century Korean map of Asia, and a 16th century German clover map, as well as a modern map of the world. Using GIS technology, she calculated the mathematical precision of each map according to modern calculation in order to show how “accurate” they are from a technically correct point of view. However, this presentation is to discuss a second culturally relative point of view to take when viewing these maps. Each document is a visual representation of the way in which people of that time and place perceived the geographical world around them; as such, each is unique and immeasurably valuable for the historical perspective they provide.

80. Navigating Grocery Stores for Smarter Food Choices: Spatial Relationships at HEB  
Kavita Singh, Economics and Business Department  
Sponsor: Mr. Anwar Sounny-Slitine

Our modern-day grocery stores present a plethora of options that range from the scientific to the raw and delicious, and many marketing tactics are carefully designed to direct our senses to options and aisles that these stores think will appeal to us. Incorporating the ideas of smart and targeted shopping with spatial relationships within a grocery store, this project uses the indoor mapping feature of Google Map Maker to map aisles of food in our local HEB to geographically plot foods that fall under a certain desired category (i.e. certified organic, no GMO, gluten-free). Knowledge of Geographic Information Science (GISc) is essential to understanding spatial relationships, and this new and innovative Google tool is a modern development that has added greatly to the field of GISc. The maps are open to editing and review by anyone and have been used to define roads and places in dozens of countries, but very little development has taken place on the kind of hyper-local level that

takes place within a grocery store. Going through the ingredient lists of a number of items located in an aisle and putting these various items into categories will help to plot these targeted characteristics spatially within the aisle. The wide variety of items available at grocery stores today is an apparent fact, but hopefully this project will open doors as to how spatial relationships can make a trip to the grocery store more exciting, convenient and eye-opening.

81. What Difference Does Local Make? A Spatial Analysis of Food Miles for Central Texas  
Ellen Hoyer, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Since the 1990s, there has been a surge of interest in eating “local” food, accompanied by considerable growth in the number of farmers’ markets throughout the United States. While there are a range of motivations for this change, the most pervasive has been the desire to eat in an environmentally sustainable fashion. The concept of “food miles” emphasizes the long distances that most produce travels before reaching the customer and how this affects global climate change through the carbon dioxide emissions. The logic is that through buying food from local vendors instead of conventional grocery stores, people can reduce their carbon footprint. The purpose of this study is to calculate the decrease in food miles and carbon emissions from shopping at a farmers’ market rather than a conventional grocery store. In this study, she will consider a few common produce items from both the Downtown Austin Farmers Market and the local H-E-B. Using a Geographic Information System, Ms. Hoyer will map the path of these produce items from the farm to the store or market, then calculate the food miles and carbon emissions of each to discover how effective the choice to “eat locally” is in reducing one’s carbon footprint.

82. Putting on Mussel: Interactions between the Asian Golden Mussel (*Limnoperna Fortunei*) and Native Ampullariid Snails  
Katie Gibson, Animal Behavior Program  
Sponsor: Dr. Romi Burks

Biological invasions represent one of the largest threats to global biodiversity. In Texas, Ms. Gibson studies a large, exotic, invasive apple snail (*Pomacea insularum*) that often consumes native plants and exhibits impressive reproduction. While documenting life history traits of *P. insularum* in its native range, she has encountered another exotic species. The Asian golden mussel, *Limnoperna fortunei*, recently (1990s) established populations in the Rio de la Plata and its surrounding tributaries in Argentina, Brazil, Paraguay, and Uruguay. While various reports confirm overlapping distributions of *L. fortunei* with native apple snails (Family: Ampullariidae), no mention of colonization on snails by *L. fortunei* exists to her knowledge. During field excursions in Uruguay (Dec. 2011/Jan. 2012), she has found multiple sizes of *L. fortunei* attached to three ampullariid species: *P. insularum*, *P. canaliculata* and *Pomella megastroma*. She has performed an experiment to test whether colonization by *L. fortunei* was 1) preferential to live snails or an immobile substrate (i.e. empty shells) and 2) differed between the species *P. insularum* and *P. megastroma*. After 48 hours, *L. fortunei* only colonized the empty shells of the two snail species and live snails showed escape tendencies. Interactions between *L. fortunei* and native apple snails reflect potential parallels between exotic zebra mussels (*Dreissena polymorpha*) and native unionids in North America. Texas populations of *P. insularum* occur along the Gulf Coast while zebra mussels have invaded Lake Texoma. Although these two species do not yet overlap in the United States, she plans to investigate how weight and position of mussels on snails affect snail feeding rates using simulated mussels (i.e. zebra mussel shells filled with sand).

83. We Are ADAPT: The Role of Collective Identity in a Disability Rights Organization  
Krystina Maloukis, Sociology and Anthropology Department  
Sponsor: Dr. Maria Lowe

This project evaluates the significance of collective identity within the disability rights movement as illustrated by ADAPT, a disability rights social justice and activism organization in Austin, Texas, with national ties. Through a series of oral history and subject specific interviews conducted during Fall 2011, as well as participant observation and content analysis of organizational materials, this research explores the relationship between disability and identity in the context of the ADAPT organization. Preliminary findings suggest that for ADAPT members engaging in disability rights activism, identification with a disability identity category is both relevant and significant to member participation. Here, the relationship between disability and identity is both explored and applied empirically. Findings also indicate that ADAPT members share a strong collective identity that impacts their day to day lives both inside and outside the ADAPT organization. ADAPT's collective identity creates solidarity among members, encouraging member participation and positively impacting the sustainability of the social movement organization as a whole. While previous scholarship has examined the relationship between disability and identity, none has done so in the context of social activism within the disability rights movement.

84. Say Yes to Sports!  
Jeff Romine, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Siltine

Where in United States is there the biggest untapped potential for a sport team/fan base? Sports teams help define the meaning of a place and its surrounding community, and in order to understand the impact sports has on regional identity Mr. Romine will map out area with high sports demands, but no sport market. He plans on showing areas of the United States which do not have a sports team, but according to demographic statistics on who likes sports, he would then be able to show areas that do in fact have a potential market. By taking a list of professional baseball teams and making a map displaying them, Mr. Romine can then use spatial analysis to display areas that don't have a team, but would benefit in having one. Some of the future implications for researching a topic like this is that it can be used to show results of possible economic development, or health/moral research.

85. Creating an Educational Programming Language  
Erick Bauman, Mathematics and Computer Science Department  
Sponsor: Dr. Richard Denman

Although there are several educational programming languages being used to teach introductory programming classes, Mr. Bauman feels that some of them have flaws, and none of them provide a programming environment on a mobile device. He intends to create an educational programming language that can be used directly on the Android platform, not requiring a desktop computer. He also intends to emphasize simple, clean, and concise syntax for the language, hopefully providing an environment easy for beginners to pick up and use. The current version of the language has only two data types, with an intended three, which is much less than in most languages. The language itself is also designed to act as a powerful calculator at its core, with all numbers stored as fractions, providing theoretically infinite precision. Current features include the ability to exactly calculate expressions with nested parenthesis, factorials, powers, logical and/or, value comparison such as less than, variable-length lists of values, console input and output, if statements, while and for loops, and methods.

86. Visual Encounter Surveys Show Limited Movement of the Georgetown Salamander (*Eurycea Naufugia*)  
Ashley Wall, Biology Department  
Sponsor: Dr. Benjamin Pierce

The Georgetown salamander is a permanently aquatic salamander known from only 15 sites in Williamson County, Texas. To analyze surface abundance and movement within the spring flow, visual encounter surveys were conducted monthly at two spring sites: Swinbank Spring (for 4 yr) and Twin Springs (for 3 yr). During each monthly survey, a 25-28 m transect was established along each spring run and potential cover objects were overturned. The number of salamanders observed and the number of cover objects overturned were recorded. Although the number of observed salamanders varied from month to month, more salamanders were seen in the spring and summer surveys than during fall and winter surveys. During the Summer 2010, Ms. Wall captured salamanders at each site, recorded their locations within the spring flow, and marked each individual with a unique color pattern of visual implant elastomers. In subsequent months, recapture of the marked salamanders provided insight into salamander movement within the spring flow. Movement of individuals over an 18-month period remained relatively low at both sites. Georgetown salamanders are especially vulnerable to human activities and are currently being considered for listing as an endangered species. These results provide basic information on the ecology of the species and provide a foundation for conservation planning.

87. More than what Meets the Eye: Associations between Friendship Gender Composition and Interdependence  
Quinlyn Morrow, Shelby Morales, Psychology Department  
Sponsor: Dr. Erin Crockett

People tend to form friendships with members of their own, as opposed to the opposite, sex. Researchers have assumed that this preference exists because biological sex is a “visually self-evident” characteristic that allows individuals to easily identify and associate with similar others. Still, there could be more to this gendered preference than what meets the eye. Specifically, a study by Gabriel and Gardner (1999) proposed that women are more relationally interdependent than men, meaning that women tend to foster a small number of intimate relationships and include these relationships in their identities. As such, it seems possible that people’s preference for same-sex friendships could result from seeking out similarities in interdependence, as opposed to only similarities in biological sex. To test this idea, Ms. Morrow and Ms. Morales assessed levels of relational interdependence and gender composition of friend networks in college students (N = 104). A Pearson Product Moment correlation revealed that relational interdependence was positively correlated with having a greater percentage of female friends than male friends. Furthermore, relational interdependence partially mediated the relationship between biological sex and gender composition of friendship networks. In other words, one reason why biological sex is associated with the gender composition of friendship groups is because of relational interdependence. This study is important because it suggests that to truly understand how individuals choose their friends we must move away from the overly simplistic theory that people’s decisions are predetermined by their biological sex and instead consider more nuanced theories about gender and relationships.

88. Culture and Conflict: The Story of Family in Post-Conflict Northern Uganda  
Krystina Maloukis, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

The research explores Acholi culture in Gulu District Uganda. Ms. Maloukis studied the impact of the twenty plus year conflict experienced in Northern Uganda on Acholi cultural identity. This presentation explores an aspect of her larger project: narratives of family within the context of a post-conflict Northern Uganda. Drawing on in-depth interviews and participant observation in Gulu, Uganda, this research tells the story of the Acholi family both before and after the Lord's Resistance Army war. Further, this paper uncovers the challenges that face the Acholi family as they work towards recovery and redevelopment while simultaneously attempting to hold on to traditions of the past. In this time of growth and change, the Acholi people must negotiate the preservation of their cultural identity with the desire for progress and independence from foreign aid. Findings suggest that the personal connections that the Acholi people have to war and conflict have permanently altered the culture of family, and raises questions as to who has a say in the reconstruction of Acholi home life.

89. A Comparison of Accuracy and Quality Between Various Priced GPS Units  
Darick Pennel, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

This presentation is designed to show the quality and accuracy of different types of GPS units sold on the market. It also explains why some GPS units are much more precise, and with the precision an increased price tag. The comparison consists of three different GPS units all designed for different uses. The first unit tested was a Rhino 120 (\$200). This is an entry level GPS used primarily for weekend hiking adventurers. The Second unit was a Trimble Geo XT, which is used for basic mapping of an area. This GPS unit is a bit larger than the normal units are and comes with a much higher price tag (\$4,000). The third unit tested was a Leica Viva GS12 (\$38,000-40,000) and is a high-end GPS unit used in the Survey industry. Each of these three GPS units operate on the same principles but the accuracy varies greatly depending on the model. One can give you a location +/- 3m but another can give a location down to a 1/16th of an inch. Each of the three GPS units have strengths and weaknesses and they have all been tested to find out if one is really better than the other or if they are all exactly what is needed for the uses they were designed for.

90. Probably Not Snail Eating Plants: Enriched Macrophyte N15 Values in a Stable Isotope Study of *Pomacea insularum's* Trophic Interactions  
Tracy Day, Biology Department  
Sponsor: Dr. Romi Burks

Stable isotopes studies utilizing N15 and C13 help determine trophic levels and energy flow within food webs. Presently, Ms. Day's research uses stable isotopes to quantify trophic position of a rising aquatic, exotic, invasive apple snail species (*Pomacea insularum*). This snail species has established sustainable, reproductive populations across the Gulf Coast. Such rapid expansion poses alarming implications for wetland habitats as these snails consume aquatic macrophytes (in addition to algae) and threaten native species. To determine the diet of *P. insularum* in the field, Ms. Day collected potential food sources including, plants, periphyton and macroinvertebrates, as well as adult snails. These samples were then prepared for stable isotope analysis and sent to be processed at the University of California at Davis Stable isotope laboratory. Results from field samples (suburban Houston, canals within Armand Bayou) unexpectedly revealed higher macrophytes N15 values (*Colocasia esculenta*, wild taro, 17.72, *Eichhornia crassipes*, water hyacinth, 15.4) than snail

values (~10.7). In contrast, values for periphyton (2.68) did not show enrichment. Intriguingly, the field site, an area of high runoff, appears to be differentially impacting macrophyte and periphyton values.

91. Effects of Exercise Intensity on Cognitive Performance During Exercise Determined in Female College Students  
Shae Seagraves, Kinesiology Department  
Sponsor: Dr. Jimmy Smith

Many occupations require individuals to make decisions during physical activity. Having a better understanding of how exercise intensity effects cognitive performance would be beneficial for these individuals. **PURPOSE:** To determine the effect of exercise intensity on performance of a cognitive task during exercise. **METHODS:** Ten physically active female students between the ages of 18-21 years performed a max test on a cycle ergometer and 15 minute exercise tests at 0%, 50%, and 75% of their max on subsequent days. A Stroop Test (ST), a common measure of cognitive performance, was conducted twice during each exercise test at 7.5 and 15 minutes while exercising. A two-way repeated-measures ANOVA was used to determine the effects of exercise intensity and time on ST completion time. **RESULTS:** There was no significant difference in ST performance due to exercise intensity ( $F(2, 9) = .005, p = .995$ ). There was a significant difference in ST due to time of the trial, ST performance increased in trial 2 compared to trial 1 ( $F(2, 9) = 39.37, p = 0.00$ ) and the time of testing accounted for about 81% of the change seen in ST performance ( $\eta^2 = 0.81$ ). There was no interaction between exercise intensity and ST trial time ( $F(2, 9) = .238, p = 0.79$ ). **CONCLUSION:** No effect of exercise intensity on performance of a cognitive task during exercise was found. A significant improvement in ST performance was observed due to ST trial time.

92. Frail Snails: Effect of pH on the Growth and Survival Rate in Juvenile Apple Snails (*Pomacea insularum*)  
Kevin Burge, Biology Department  
Sponsor: Dr. Romi Burks

Even highly successful invasive species experience vulnerability at some point in their life history. The apple snail *Pomacea insularum* (soon to be renamed *P. maculata*) represents an aquatic invasive gastropod native to South America. This species has established populations along the Gulf Coast and threatens the health of wetland ecosystems by eating aquatic plants. Eradication efforts and management practices must target vulnerable life history stages to control further spread of the species. Adult snails produce hundreds or thousands of offspring every year. Consequently, many offspring have the potential to grow quickly and devastate wetland areas in a very short period of time. The younger individuals likely experience more susceptibility to different environmental conditions. Initial research established a protocol to successfully grow hatchlings in bulk quantities in the laboratory. We can now test how environmental factors affect hatchling growth. Using a gradient of pH, Mr. Burge will monitor the growth, shell quality and survival rate of the snails over the course of 6-8 weeks to create a survivorship curve for several populations (i.e. clutches). Five treatments will be utilized to compare growth and survivorship (pH 6.0, pH 6.5, pH 7.0, pH 7.5 and pH > 8.5). This information can be used to estimate the likelihood that a hatchling will survive to adulthood in varying environments. Finding distinct critical points of rapid growth or high mortality in the snail's life cycle of the snails may help inform current management practices.

93. Flood Adaptation Policy in Williamson County: Understanding of how 5 year, 50 year and 100 Year Flood Policies Shape Urban Development  
Brandee Knight, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Current flood policy, the National Flood Insurance Program, in the United States has led to the cycle of destruction and rebuilding in high risk flooding areas. By providing financial protection for over 5.5 million homes built in moderate risk flood zones every year the government pays citizens to rebuild on the same land and continue the cycle. An alternative solution of 'payout' is presented, where local governments use funds and eminent domain to acquire properties in the danger zones. Using ESRI ArcMap software a land parcel model is developed to estimate the total expenditures then used in the analysis of the 'payout' option versus the status quo. If implemented, the moderate risk areas would leave 'room for the river' to behave in natural floodplain inundations, thus protecting as well as nature.

94. Mapping D-Day  
Jase Carr, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Operation Overlord effectively opened a Western Front on mainland Europe during the Second World War, taking pressure off the bloodied Soviet Red Army, and hastening the destruction of Hitler's Third Reich. However, before the cross-Channel invasion could even be attempted, Allied commanders had identified and select the beaches on which their soldiers would disembark using methods analogous to modern-day Geographic Information Systems technology. Despite only having accurate cartographic information from 1933, the combined forces of Canada, France, Great Britain, and the United States were able to successfully employ geographic and spatial analysis to calculate and measure the changing landscape of the Calvados Peninsula in the build-up to D-Day. This project would show how involved the planning was for the landings, the importance of the human element in its implementation, how they collected and interpreted data, and why the late-May/early-June time frame was considered the optimal time for an invasion of mainland Europe.

95. The Synthesis of Bisanthrapyrazoles with Polyglycolic Molecular Linker Arms  
Jodi Kirk, Chemistry and Biochemistry Department  
Sponsor: Dr. Nikolaos Benteinitis

Anthrapyrazoles are DNA-intercalating agents that are currently being studied as less cardiotoxic alternatives to anthracycline-based anticancer drugs. A bisanthrapyrazole consists of two anthrapyrazoles linked by a molecular spacer arm. Entropic effects should favor intercalation of both anthrapyrazoles and thus increase their biological activity. Previous studies suggest that improving the water-solubility of bis-anthrapyrazoles should yet improve their bio-availability and hence their cytotoxicity. This can be achieved by linking the anthrapyrazoles using a water-soluble polyglycolic spacer arm. In the present study, two such bis-anthrapyrazole derivatives were synthesized. One of them was prepared using three different coupling methods. In particular, one of the coupling methods proved very efficient and versatile to synthesize various bis-anthrapyrazole derivatives, together with saving several synthetic steps. The bisanthrapyrazole with a triglycolic spacer arm was successfully purified and sent for biological testing. The IC<sub>50</sub> value for growth inhibition of leukemia K562 cells was 92.7  $\mu$ M. The bisanthrapyrazole with a tetraglycolic spacer arm needs to be re-synthesized in greater amount, in order to be obtained in high enough purity to be sent for DNA-binding and cytotoxicity testing. In addition, it is believed that two other bisanthrapyrazole derivatives, with an additional substituent on the anthrapyrazole ring

("long arm"), were also obtained using the last coupling method, but further purification and characterization is necessary to confirm this result.

96. The Two Sides of Georgetown: How Socioeconomic Boundaries Divides the City

Hannah Barrueta Sacksteder, Environmental Studies Program

Sponsor: Mr. Anwar Sounny-Slitine

Georgetown like most cities in the United States has two very different experiences for its inhabitants. This project will create a map that represents the two Georgetown's and the reason for their existence. The city of Georgetown is divided upon economic lines creating a boundary for daily life which manifests into the city fabric through buildings such as supermarkets (i.e. HEB), schools, business, parks, and residential areas. This research will map out socioeconomic data collected by the census representing each side of Georgetown, and reflecting the key elements in each one. This project looks to answer these questions: How do these two Georgetown(s) differ and in what ways do they interact with each other?

97. Improvements in Autism Spectrum Disorder Symptoms Associated with Equine-Assisted Activities and Therapy

Iris Schendstok, Kyla Flynn, Christine Moody, Emily Blatney, Psychology Department

Sponsor: Dr. Jacqueline Muir-Broadus

The symptoms of Autism Spectrum Disorder (ASD) vary widely and may include repetitive behaviors, sensory sensitivity, and poor social and verbal skills. One promising treatment is equine-assisted activities and therapy (EEA/EAT), in which individuals with ASD ride horses for the therapeutic effects of the repetitive motion of the horse and sensory input, among other things. Interacting with animals is also believed to promote pro-social behaviors, such as smiling and communicating. Given that the research demonstrating the benefits of EEA/EAT is sparse, the present study observed the effects of EEA/EAT on the symptoms of seven boys with ASD (ages 3-6) at the Ride on Center for Kids (ROCK). Measures included two questionnaires, the Pediatric Quality of Life (PedsQL) and Sensory Profile, which parents filled out at weeks 0, 4, 8, and 12, and also parent interviews after four months of therapy. Although the questionnaires did not yield statistically significant change for the group as a whole in any single domain of functioning, parents reported improvements in their own child's specific problem behaviors, such as increased social and communication skills and decreased repetitive movements. The interviews also supported previous research about the benefits of EEA/EAT with children with ASD. For example, most parents mentioned how happy and engaged their child was while riding their horse, as well as the importance of the relationship between the child and the horse. These benefits are important to document in order to firmly establish EEA/EAT as a standard treatment modality.

98. Creating Optimal Housing Locations for United States Elderly

Isabella Vargas, Environmental Studies Program

Sponsor: Mr. Anwar Sounny-Slitine

This study focused on the distribution of the elderly population within the city of the top three ranked geriatric hospital departments. The locations of these hospitals were New York City, Los Angeles, and Baltimore. The hospital site was layered, using ArcMap10, with the census data of elderly populations within the respective city. By seeing whether the population of people living close to the hospital had a higher density of elderly people, than that of the rest of the city, Ms. Vargas was able to determine if the hospitals acted as a magnet for the elderly. If so, the ten mile area around the hospital is an optimal area for which the elderly can find comfortable housing, and a community of similar people. With this

information, elderly people looking to move can feel safe knowing that they are in an area surrounded by people their age and close to a top ranked hospital, should they have an emergency.

99. Perceptions of Dating in Adolescence and Self-Esteem in Emerging Adulthood  
Sara Goodman, Hillary McDonald, Psychology Department  
Sponsor: Dr. Erin Crockett

A number of developmental transitions occur in adolescence—puberty begins, bodies change and grow, and interest in dating emerges. Importantly, adolescent dating has been linked to a number of both positive and negative psychological outcomes, ranging from social acceptance to risky sexual behaviors (Furman et al., 2009). They argue that past research's focus on quantity, rather than the quality, of adolescent relationships makes it hard to explain these diverse psychological outcomes. Consistent with preliminary narrative research (Tolman et al., 2003), they hypothesized that the quality of adolescent relationships matters more than the quantity of adolescent relationships when predicting an important component of psychological well-being: self-esteem. Students (N = 104) at a small liberal arts university in central Texas completed a survey that assessed self-esteem (using the 10-item Rosenberg self-esteem scale), number of adolescent relationships, and perceptions of past adolescent dating. A multiple regression analysis in which the number and quality of adolescent relationships were entered as predictors of self-esteem revealed that adolescent relationship quality, as opposed to number of relationships, was the most significant predictor of emerging adulthood self-esteem. In other words, when people think back to their adolescent relationships, the quality of adolescent relationships is more strongly associated with self-esteem, not merely whether adolescents date. Given that adolescence is such an important time for the development of self-esteem (Erol & Orth, 2011), one implication of this research is the need for youth intervention programs which can enrich adolescent dating experiences by teaching adolescents how to have healthy romantic relationships.

100. Project NEF-HOPE (The Fusor Project)  
Evan Firth, Vicente Estrada-Carpenter, Physics Department  
Sponsor: Dr. Steven Alexander

The goal of this project is to build a fusor – a small nuclear fusion reactor. Amateur scientists have created several different types of fusors in recent years and the design is similar to those versions that are known to be successful. The experiment is unique in that they will be attempting to make a new, modular design that utilizes recycled deuterium tubes as a fuel source. Additionally, they intend to carefully record all methods so that this experiment is replicable by a typical college student. The goal is to inspire people to think beyond oil and petroleum energies, and begin considering the possibility of a nuclear future.

101. Automated Microorganism Detector  
Marisol Frausto-Martinez, Heather Petty, Jessilyn Massey, Tran Le, Eric Godat, Natural Sciences Division  
Sponsor: Mr. Gerald Wade

Over the past two years, the Automated Microorganism Detector project has been primarily focused on hospital applications. With current funding, they decided to shift their focus to the food industry, while still pursuing biomedical applications through other means. Currently, the food industry has a set of standards for the minimal amount of bacteria that can be present in food before it is shipped to local grocery stores. Although

quicker methods for detecting and quantifying bacteria have developed in the food industry over the years, they believe improvements can still be made by integrating the process of detecting the number of species in a product and identifying the species itself. The machine has the potential for novel applications to the food industry by providing a low-cost, time-efficient, and accurate method of detecting and quantifying bacterial species in food products. They believe the method will reduce the time lapse between when safe levels of bacteria are confirmed in a food product and when the product can be available at local grocery stores. By providing more efficient means of bacterial detection to the food industry, we can save time and resources for companies as well as promote consumer health safety.

102. Analyzing the Mutualistic Interactions of Kale between Two Different Species of Earthworms

William Sessions, Liliana Galvez, Bronwyn Tyler, Amanda Hamala, ReAnna Jacob,  
Biology Department  
Sponsor: Dr. Romi Burks

Mutualistic cooperation often serves as an agricultural strategy for maximizing crop yield. Mr. Sessions, Ms. Galvez, Ms. Tyler, Ms. Hamala, and Ms. Jacob choose to study the potential mutualistic relationship between earthworms and plant roots in the community garden at Southwestern University. Earthworms modify soil porosity and increase soil mineralization, thus maximizing oxygen intake by plant roots. Plant roots provide earthworms with protection and erosion control for their habitats. As part of an Ecology course group project, they studied two common species of earthworms, red wigglers (*Eisenia foetida*) and European nightcrawlers (*Eisenia hortensis*), in the central Texas climate to determine the best species for promoting plant growth. They used a one-factor design (N=5-6) in a 0.864 m<sup>3</sup> plot where they blocked two sections for the *E. foetida*, two sections for the *E. hortensis*, and one section for the control. They used a mass ratio to determine the number of worms per plant (24 *E. foetida* and 16 *E. hortensis*). All of our Nagoya red kale (*Brassica oleracea* var. *acephala*) plants started out at the same size statistically. They measured leaf number, plant width and plant height weekly for the first two weeks and bi-weekly for the last two weeks. They expect to find greater plant growth for the treatments with earthworms than the treatments without earthworms. Mr. Sessions, Ms. Galvez, Ms. Tyler, Ms. Hamala, and Ms. Jacob do not expect to find a significant difference in plant growth between the two species of worms. The results may reinforce the notion that having earthworms creates as a better alternative practice to conventional agriculture and also suggest their use in future garden work.

103. People, Places, and Payments for Environmental Services (PES): Mapping Costa Rica's Conservation Initiatives Alongside Demographic Patterns

Vanessa Toro, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Costa Rica, a nation of Central America, holds a reputation of environmental leadership. As a small, developing country, the nation has placed nearly 25% of its territory under some form of protection. Despite the country's image as a conservation leader since the 1970s, the nation continues to experience deforestation. To reduce forest degradation and deforestation, particularly in privately owned land, the nation now participates in a national Payment for Environmental Services (PES) program which pays private land owners to keep land forested with the intention to protect biodiversity, scenic beauty, aquifer protection, and ensure carbon sequestration. Despite PES's intention of ensuring conservation and economic development goals, PES sites can participate in a conflict of interest between local communities and the national and international goals of

conservation strategies which exclude certain people from control and access to resources. In this study, Ms. Toro looked at the overarching question of the relationship between livelihood and access to resources and employed the use of Geographical Information Systems (GIS) to map the location of PES sites with relation to race, ethnicity, and income of the nation's regions. This spatial analysis serves to observe demographic patterns alongside prominent conservation initiatives, and uncovers ways in which segregated demographic patterns that have established since colonial times may be affected still today within the system of conservation in Costa Rica.

104. Microscopic Buffet: Estimates of Meiofauna Availability for the Georgetown Salamander in Two Permanent Springs  
Jonathan Miley, Biology Department  
Sponsor: Dr. Romi Burks

Food availability depends on both quality and quantity and often determines growth rate and survival of sensitive organisms. The Georgetown salamander, *Eurycea naufragia* occurs only in Williamson County. Permanent springs serve as their habitat, but these springs experience severe threats due to urbanization, drought and land conservation issues. Consequently, the species will likely undergo listing as an endangered species along with other *Eurycea* in Central Texas. Overall, lack of additional information on the ecology of this species continues to hinder conservation efforts. To address this gap in knowledge and understand the feeding habits of *E. naufragia*, Mr. Miley sampled two permanent springs, Twin Springs and Swinbank Springs, monthly. Quadrat samples included all invertebrates found on rocks and other available hard substrates. In addition, Mr. Miley siphoned up sediment in each quadrat to collect meiofauna. He has recently begun the process of counting and identifying invertebrates. The samples to-date include 15 different potential prey items, with non-biting midges (Chironomidae), Scuds (Amphipoda) and Copepods as the most frequently encountered in the samples (~66%). The remaining one-third consisted of much larger organisms including dragonflies, mayflies, water striders, caddisflies and crayfish. Most meiofauna measured less than 10-mm in length and ~70% of all meiofauna collected occurred in the sediment samples. Consequently, Mr. Miley believes that these meiofauna, and not the larger prey on the rocks, provide the most likely food source for the critically threatened *E. naufragia*.

105. "Fun"-gi Research: Mycorrhizae, the Best Friend of Tuscan Kale and Curly Kale Plants  
Bertha Ortega, Ivan Cruickshank, Alyssa Granado, Christian Penland, Natalie Tejada, Biology Department  
Sponsor: Dr. Romi Burks

Nutrient cycling involves movement of organic and inorganic material for the production of living matter. When there is an insufficiency, plants may rely on mutualistic relationships to obtain their nutrients. Mycorrhizae refers to a fungus that forms a mutualistic relationship with roots of plants and provides them with nutrients. In this experiment, Ms. Ortega, Mr. Cruickshank, Ms. Granado, Mr. Penland, and Ms. Tejada tested the effectiveness of two different brands of mycorrhizae on two types of Brassicaoleracea, commonly known as Tuscan kale and Curly kale. The Hill Country compost that they used naturally contains some combination of ecto- and endomycorrhizae along with soil bacteria. Our second treatment, commercial Plant Success, contains 11 varieties of ecto- and endomycorrhizae and Vegetable Thrive contains 8 varieties of endomycorrhizae. They planted 15 Tuscan and 15 Curly kale plants at Southwestern University community garden; 5 Tuscan and 5 Curly kale on soil with compost; 5 Tuscan and 5 Curly kale received Plant Success mycorrhizae during 4 weeks; and 5 Tuscan and 5 Curly kale received Vegetable Thrive mycorrhizae during 4

weeks. Ms. Ortega, Mr. Cruickshank, Ms. Granado, Mr. Penland, and Ms. Tejada measured the number of leaves, height, diameter, and the length and weight of the largest leaf. The results indicated a significant difference in height and number of leaves between the plants grown with compost and plants exposed to mycorrhizae. Both Tuscan kale and Curly kale grown with mycorrhizae grew faster than kale plants grown with compost. The experiment highlights the importance of mycorrhizae in gardening because it increases the production of plants by accelerating their development without causing any damage to the soil.

106. Culture and Conflict: The Story of Family in Post-Conflict Northern Uganda  
Krystina Maloukis, Sociology and Anthropology Department  
Sponsor: Dr. Brenda Sendejo

Ms. Maloukis research explores Acholi culture in Gulu District Uganda. Specifically, she studied the impact of the twenty plus year conflict experienced in Northern Uganda on Acholi cultural identity. This presentation explores an aspect of her larger project: narratives of family within the context of a post-conflict Northern Uganda. Drawing on in-depth interviews and participant observation in Gulu, Uganda, this research tells the story of the Acholi family both before and after the Lord's Resistance Army war. Further, this presentation uncovers the challenges that face the Acholi family as they work towards recovery and redevelopment while simultaneously attempting to hold on to traditions of the past. In this time of growth and change, the Acholi people must negotiate the preservation of their cultural identity with the desire for progress and independence from foreign aid. Findings suggest that the personal connections that the Acholi people have to war and conflict have permanently altered the culture of family, and raises questions as to who has a say in the reconstruction of Acholi home life.

107. Psuedo-Osmotic Perpetuation: A Study of Osmosis in a Closed System  
Robert Lehr, Chemistry and Biochemistry Department  
Sponsor: Dr. Willis Weigand

This project was designed to determine the entropic cause for the equilibration of the U-tube osmosis closed system. The project will be separated into two stages. The first stage will determine whether the force of gravity is strong enough to surpass the force keeping the water in solution from passing through a dialysis membrane. In this scenario the solution is suspended in a vertical tube with the dialysis membrane preventing it from pouring out. If the force is not strong enough, external pressure will be applied until the force needed for the water to pass through the membrane is found. For the first stage, the solution will be prepared with distilled water and sucrose at a specific concentration. This same solution will be used for the second stage. The second stage will determine what causes the system to equilibrate. A modified U-tube will be used as the closed system. The system will then be observed as osmosis occurs and the results recorded. Further research will be conducted to see how solute concentration, membrane variability, and pressure differences affect the system.

108. Mapping the Vernacular Geography of Southwestern University Students  
Kyle Mathis, Environmental Studies Program  
Sponsor: Mr. Anwar Sounny-Slitine

Vernacular geography is the sense of place that is reflected in ordinary people's language use. This is the way that people discuss and refer to locations central to their world in their own customary terms - such as the unofficial names for streets, neighborhoods, landmarks, and other geographic features. These places often have

boundaries that change from individual to individual based on their personal interactions and experiences with those places. Variations among individuals' definitions of a place make vernacular geography difficult to map. This project attempts to create a map - based on the concept of vernacular geography - of Southwestern and the parts of Georgetown (landmarks, prominent areas, and commonly used parts of town) with which Southwestern students interact.

109. Oxidative DNA Damage Induced by Photoactivated Daunomycin in the Presence of Copper Ions

Jace Venters, Chemistry and Biochemistry Department

Sponsor: Dr. Maha Zewail-Foote

The anthracycline antibiotic daunomycin (DM) is a well-known anti-cancer drug that intercalates DNA. Photoactivation of DM leads to oxidative DNA base damage and the production of superoxide, which is consistent with a charge transfer mechanism. Metal ions can mediate this process by catalyzing the formation of hydroxyl radicals or by forming binary or ternary complexes. Here, Mr. Venters reports that the addition of copper(II) ions enhances the formation of DNA strand breaks induced by photoactivated DM. In addition, the level of DNA damage decreases with increasing ionic strength. Finally, the extent of DNA photocleavage with and without copper(II) ions was monitored in the presence of reactive oxygen species (ROS) scavengers. The results suggest that ROS contribute to the photoinduced cleavage of DNA in this system.

110. Is it Worth it? The Cost of Electric and Gas Powered Cars.

Caitlin Sargent, Mathematics and Computer Science Department

Sponsor: Dr. Therese Shelton

Ms. Sargent calculates the overall cost of an electric and a gas-powered car while taking into account variables such as gas prices, charging stations, and the cost of batteries for each respective car. Ms. Sargent then calculates which type of car is least expensive in a ten-year time frame.



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## NOTES



# 2012 EVALUATION FORM

Indicate the category that most accurately reflects your status:

Faculty     Staff     Student     Community Resident     Other \_\_\_\_\_

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1. Overall, the Symposium offered a variety of research and creative works that you found interest in.

Strongly Agree     Agree     Disagree     Strongly Disagree

2. The poster sessions offered the variety and quality I look for in conference programs.

Strongly Agree     Agree     Disagree     Strongly Disagree

3. The oral sessions offered the variety and quality I look for in conference programs.

Strongly Agree     Agree     Disagree     Strongly Disagree

4. The information distributed prior to the Symposium was helpful in making plans to attend.

Strongly Agree     Agree     Disagree     Strongly Disagree

5. The facilities/meeting rooms effectively supported all sessions.

Strongly Agree     Agree     Disagree     Strongly Disagree

6. There was a good mix of presentations offerings at the Symposium.

Strongly Agree     Agree     Disagree     Strongly Disagree

8. The Symposium Web site contained useful information and was easy to use.

Strongly Agree     Agree     Disagree     Strongly Disagree

9. The food service was adequate and of appropriate quality for the Symposium.

Strongly Agree     Agree     Disagree     Strongly Disagree

10. Overall, I thought the Symposium was:

Excellent     Good     Fair     Poor

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What did you like most of the Symposium?

What are your suggestions for improving the Symposium?

Please provide any additional comments.

*Please return form to Christine Vasquez, Office of the Provost*



